

CALIFORNIA HIGH-SPEED TRAIN

Project Environmental Impact Report/Environmental Impact Statement

Preliminary Alternatives Analysis Report Los Angeles to San Diego via the Inland Empire Section

March 3, 2011



TABLE OF CONTENTS

ES.0 EXECUTIVE SUMMARY
 ES.1 Los Angeles to San Diego via the Inland Empire Section HST Project Background ----- ES-1
 ES.2 Results from the Preliminary Alternatives Analysis----- ES-1
 ES.2.1 Alignment Alternatives and Station Options Carried Forward (Subsection 1) ----- ES-1
 ES.2.2 Alignment Alternatives and Station Options Carried Forward (Subsection 2) ----- ES-2
 ES.2.3 Alignment Alternatives and Station Options Carried Forward (Subsection 3) ----- ES-2
 ES.3 Alternative Analysis Evaluation Measures ----- ES-2
 ES.4 Public and Agency Outreach Efforts ----- ES-3
 ES.5 Next Steps ----- ES-3

1.0 INTRODUCTION
 1.1 California HST Project Background----- 1-1
 1.2 Los Angeles to San Diego via the Inland Empire Section EIR/EIS Background----- 1-1
 1.3 Study Area ----- 1-2
 1.4 Purpose of Study----- 1-2

2.0 ALTERNATIVES DEVELOPMENT PROCESS
 2.1 HST Project Purpose ----- 2-1
 2.2 Identification of Alternatives to be Carried Forward ----- 2-1
 2.3 HST Design Objectives----- 2-2
 2.4 Comparison of Project Alternatives ----- 2-2

3.0 PROJECT ALTERNATIVES
 3.1 No Project Alternative-----3-1
 3.1.1 Highway Infrastructure ----- 3-3
 3.1.2 Aviation Element ----- 3-3
 3.1.3 Conventional Passenger Rail Element ----- 3-3
 3.2 Program-Level Alternatives----- 3-4
 3.2.1 Statewide Program EIR/EIS Alternatives----- 3-4
 3.2.2 Los Angeles to San Diego (via the Inland Empire) Section Routing and Station
 Alternatives from 2005 Statewide Program EIR/EIS ----- 3-4
 3.3 Initial Development of Alternatives ----- 3-6
 3.3.1 Agency Coordination and Public Outreach----- 3-7
 3.3.2 Initial Review of Alternatives----- 3-9
 3.3.3 Los Angeles Union Station to Ontario International Airport Subsection (S1)----- 3-11
 Alignment Alternatives ----- 3-11
 Los Angeles Union Station Connection Options----- 3-11
 San Gabriel Valley Cities ----- 3-12
 Gateway Cities ----- 3-12
 LAUS to I-605/I-10 ----- 3-15
 I-605/I-10 to Ontario International Airport----- 3-19
 3.3.4 Ontario International Airport to Murrieta/Temecula Subsection (S2) ----- 3-25
 Alignment Alternatives ----- 3-25
 Ontario International Airport Station Approach Alignment----- 3-25
 I-215 Alignment Alternatives----- 3-28
 I-15 Alignment Alternatives ----- 3-34
 3.3.5 Murrieta/Temecula to San Diego Subsection (S3)----- 3-36
 Alignment Alternatives ----- 3-36
 Common Alignment: Murrieta/Temecula to SR 56 ----- 3-36
 Alignments South of SR 56----- 3-41

San Diego Terminus Design Options ----- 3-44
 Maintenance Facility Options----- 3-44
 3.3.6 LA-SD Section Station Alternatives----- 3-46
 Los Angeles Union Station to Ontario International Airport Subsection (S1) Station
 Alternatives ----- 3-46
 San Gabriel Valley Station Alternatives ----- 3-47
 Ontario International Airport to Murrieta/Temecula Subsection (S2) Station
 Alternatives ----- 3-51
 Ontario International Airport Station Alternative ----- 3-51
 San Bernardino Station Alternative ----- 3-51
 North Riverside County Station Alternative ----- 3-52
 City of Murrieta Station Alternative ----- 3-54
 Murrieta/Temecula to San Diego Subsection (S3) Station Alternatives ----- 3-55
 City of Escondido Station Alternative ----- 3-55
 University City Station Alternative----- 3-56
 San Diego Station Alternative----- 3-57

4.0 EVALUATION OF SUBSECTION ALIGNMENT ALTERNATIVES, STATION LOCATION OPTIONS AND DESIGN OPTIONS

LA-SD Section Run Times/Ridership ----- 4-1
 4.1 Evaluation of Alignment Alternatives ----- 4-2
 4.1.1 LAUS to Ontario International Airport (ONT) Subsection (S1)----- 4-2
 Alignment Alternatives ----- 4-2
 LAUS to I-605/I-10 ----- 4-2
 I-605/I-10 to Ontario International Airport Alignment Alternatives ----- 4-7
 4.1.2 Ontario International Airport to Murrieta/Temecula Subsection (S2) ----- 4-9
 Alignment Alternatives ----- 4-12
 I-215 Alignments----- 4-12
 I-15 Alignments ----- 4-13
 Common Alignment South of Norco ----- 4-13
 4.1.3 Murrieta/Temecula to San Diego Subsection (S3)----- 4-13
 Alignment Alternatives ----- 4-13
 Common Alignment: Murrieta/Temecula to SR 56 ----- 4-13
 Alignments South of SR 56----- 4-14
 Design Options within Escondido and San Diego----- 4-18
 4.2 Evaluation of Station Location Alternatives and Station Options----- 4-18
 4.2.1 LAUS to Ontario International Airport (ONT) Subsection (S1)----- 4-18
 Station Alternatives----- 4-19
 San Gabriel Valley Station Alternative ----- 4-19
 4.2.2 Ontario International Airport to Murrieta/Temecula Subsection (S2) ----- 4-19
 Station Alternatives----- 4-19
 Ontario International Airport Station Alternative ----- 4-19
 San Bernardino Station Alternatives ----- 4-20
 North Riverside County Station Alternative ----- 4-20
 City of Murrieta Station Alternative ----- 4-20
 4.2.3 Murrieta/Temecula to San Diego Subsection (S3) ----- 4-21
 Station Alternatives----- 4-21
 Escondido Station Alternative----- 4-21
 University City Station Alternative----- 4-21
 San Diego Station Alternatives ----- 4-21
 Commuter Station Overlay Compatibility ----- 4-21

5.0 ANALYSIS SUMMARY AND CONCLUSIONS

5.1 Alignment Alternatives, Station Alternatives and Design Options to be Carried Forward into EIR/EIS ----- 5-1

5.1.1 Los Angeles to Ontario International Airport Subsection (S1) ----- 5-1

Alignment Alternatives ----- 5-1

5.1.2 Ontario International Airport to Murrieta/Temecula Subsection (S2) ----- 5-5

Alignment Alternatives ----- 5-5

5.1.3 Murrieta/Temecula to San Diego Subsection (S3) ----- 5-9

Alignment Alternatives ----- 5-9

5.2 Evaluation of Station Location Alternatives and Station Options ----- 5-12

5.2.1 LAUS to Ontario International Airport (ONT) Subsection (S1) ----- 5-12

Station Alternatives ----- 5-12

5.2.2 Ontario International Airport to Murrieta/Temecula Subsection (S2) ----- 5-12

5.2.3 Murrieta/Temecula to San Diego Subsection (S3) ----- 5-13

5.3 Summary Recommendations ----- 5-18

6.0 References

- Appendix A** Plan & Profile Drawings
- Appendix B** Alternatives Analyses Evaluation Matrices
- Appendix C** Cost Estimates
- Appendix D** Outreach
- Appendix E** Planned Projects Map
- Appendix F** Environmental Constraints Map

TABLES

Table ES-1: Alignment Alternatives Evaluation Matrix (Subsection 1)

Table ES-2: Station Option Evaluation Matrix (Subsection 1)

Table ES-3: Alignment Alternatives Evaluation Matrix (Subsection 2)

Table ES-4: Station Option Evaluation Matrix (Subsection 2)

Table ES-5: Alignment Alternatives Evaluation Matrix (Subsection 3)

Table ES-6: Station Option Evaluation Matrix (Subsection 3)

Table 2-1: Alignment and Station Performance Objectives and Evaluation Measures

Table 2-2: Land Use Evaluation Measures

Table 2-3: Constructability Evaluation Measures

Table 2-4: Community Evaluation Measures

Table 2-5: Natural Resources Evaluation Measures

Table 2-6: Environmental Quality Evaluation Measures

Table 3-1: Key Planned and Programmed Transportation Improvements in the LA-SD Section

Table 3-2: Existing California Intercity Highway System

Table 3-3: Programmed Improvements in 2008 State Rail Plan

Table 3-4: LA-SD and LA to Anaheim Connection Compatibility

Table 4-1: Southern Approach to LAUS for LA-SD

Table 4-2: Northern Approach to LAUS for LA-SD

Table 5-1: Alignment Alternatives Analysis Matrix (Subsection 1 – LAUS to I-605/I-10)

Table 5-2: Alignment Alternatives Analysis Matrix (Subsection 2)

Table 5-3: Alignment Alternatives Analysis Matrix (Subsection 3)

Table 5-4: Station Options Analysis Matrix

FIGURES

Figure ES-1: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 1)

Figure ES-2: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 2)

Figure ES-3: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 3)

Figure ES-4: Alignment and Station Options Carried Forward

Figure 1-1: High Speed Train Initial Study Corridors

Figure 1-2: LA-SD Section Study Area

Figure 3-1: 2010 Existing Transportation Network in the LA-SD Section

Figure 3-2: 2005 Statewide Program EIR/EIS LA to San Diego via the Inland Empire Preferred Alignment

Figure 3-3: Southern California Institutional Framework for the LA-SD Section

Figure 3-4: Alternative Alignments and Station Options Carried Forward Into Preliminary Alternatives Analysis

Figure 3-5: Alignment Alternatives and Station Alternatives – Subsection 1 (LAUS to I-605)

Figure 3-6: I-10/Metrolink Corridor in Alhambra

Figure 3-7: Conceptual Cross-Section I-10 from I-710 to El Monte

Figure 3-8: I-10 from I-605 to Athol Street

Figure 3-9: Los Angeles Union Station Approach Design Options

Figure 3-10: Valley Boulevard West of I-710

Figure 3-11: Below-Grade Alignment Near North Herbert Avenue

Figure 3-12: SR 60 from I-710 to I-605

Figure 3-13: SR 60 in Monterey Park at Greenwood Avenue

Figure 3-14: UPRR Alignment at Montebello

Figure 3-15: UPRR Adjacent from Redondo Junction to I-605

Figure 3-16: Alignments Alternative and Station Options – Subsection 1 (I-605 to Ontario International Airport)

Figure 3-17: Metrolink Corridor/Claremont at Indian Hill Boulevard

Figure 3-18: Metrolink Corridor with 50-foot ROW

Figure 3-19: Metrolink Corridor with 100-foot ROW

Figure 3-20: I-10 from Athol Street to West Covina

Figure 3-21: I-10 in West Covina at Azusa Avenue

Figure 3-22: HST Alignment Along SR 71 in Pomona

Figure 3-23: Holt Corridor Looking East in Pomona

Figure 3-24: Holt Avenue Above-Grade

Figure 3-25: First Street/State Street Aerial Option in Pomona and Montclair

Figure 3-26: First Street/State Street At-Grade Option in Pomona and Montclair

Figure 3-27: Ontario International Airport Existing Conditions

Figure 3-28: Ontario International Airport Master Plan

Figure 3-29: Alternative Alignments and Station Options – Subsection 2 (Ontario International Airport to North Riverside County)

Figure 3-30: SANBAG Metrolink Corridor-Fontana at Palmetto Avenue
 Figure 3-31: Metrolink/HST Shared Right-of-Way Above-Grade at Fontana and Rialto
 Figure 3-32: Metrolink/HST Shared Right-of-Way At-Grade at Fontana and Rialto
 Figure 3-33: San Bernardino Alternative West of I-215
 Figure 3-34: UPRR Corridor in Fontana
 Figure 3-35: I-10 Alternative between Ontario and Colton
 Figure 3-36: HST Alternative on Chicago Avenue
 Figure 3-37: HST Alternative on Iowa Avenue
 Figure 3-38: I-215 near UC-Riverside
 Figure 3-39: I-215 at Van Buren Boulevard
 Figure 3-40: I-215 in Moreno Valley North of Van Buren Boulevard
 Figure 3-41: I-215 near Harley Knox Boulevard
 Figure 3-42: Alternative Alignments and Station Options – Subsection 2 (North Riverside County to Murrieta/Temecula)
 Figure 3-43: Miliken Avenue between Ontario and Eastvale
 Figure 3-44: Milliken/Hamner Corridor, Looking North in Ontario
 Figure 3-45: I-15 from Ontario to Norco
 Figure 3-46: I-15 Just North of SR 91
 Figure 3-47: I-15 South of Corona at Temescal Canyon Road
 Figure 3-48: At-Grade Guideway along I-15 Corridor
 Figure 3-49: Alignments and Station Alternatives – Subsection 3 (Murrieta/Temecula to North San Diego County)
 Figure 3-50: Below-Grade Alignment at Rainbow
 Figure 3-51: I-15 between Gopher Canyon and Country Club Lane
 Figure 3-52: I-15 at Escondido – Country Club Lane to Lake Hodges
 Figure 3-53: Sprinter under I-15, Looking South
 Figure 3-54: I-15 South of Lake Hodges – Managed Lanes
 Figure 3-55: Alignment and Station Alternatives - Subsection 3 (North San Diego County to San Diego)
 Figure 3-56: I-15 Managed Lanes – South from Carmel Mountain Road
 Figure 3-57: Conceptual Cross-Section of HST Guideway in the SR 56 Corridor
 Figure 3-58: I-5 Above-Grade Configuration South of SR 52
 Figure 3-59: HST Alignment in the LOSSAN Corridor Adjacent to I-5
 Figure 3-60: Existing Conditions in the LOSSAN Corridor
 Figure 3-61: HST Platform at SDIA Intermodal Station (Aerial Design Option)
 Figure 3-62: HST Approach to SDIA Intermodal Center
 Figure 3-63: HST along Miramar Road
 Figure 3-64: HST in Rose Canyon
 Figure 3-65: HST Below-Grade Alignment At SR 163
 Figure 3-66: SR 163 Corridor (Looking South from Balboa Avenue)
 Figure 3-67: I-15 from Miramar Marine Corps Air Station to I-8
 Figure 3-68: I-8 Looking East at Taylor Street
 Figure 3-69: I-8 from I-15 to I-5
 Figure 3-70: El Monte Transit Center Station Option
 Figure 3-71: El Monte Station – I-605 Option

Figure 3-72: West Covina Station Option
 Figure 3-73: Cal Poly Station Option
 Figure 3-74: Industry Station Option
 Figure 3-75: Pomona/Holt Station Option
 Figure 3-76: Pomona/UPRR Station Option
 Figure 3-77: Pomona/First Station Option
 Figure 3-78: Ontario International Airport Station
 Figure 3-79: City of San Bernardino Station Option
 Figure 3-80: County of San Bernardino I-10 Station Option
 Figure 3-81: Riverside Station-Martin Luther King Boulevard Option
 Figure 3-82: Riverside Station - Watkins Drive Option
 Figure 3-83: March ARB Station Option
 Figure 3-84: Corona Station Option
 Figure 3-85: Murrieta – I-215 Station Option
 Figure 3-86: Murrieta – I-15 Station Option
 Figure 3-87: Escondido – I-15 Station Option
 Figure 3-88: City of Escondido – Centre City Parkway Station Option
 Figure 3-89: University City Station North Option
 Figure 3-90: University City Station Rose Canyon Option
 Figure 3-91: Qualcomm Stadium Terminus Station Option
 Figure 3-92: San Diego International Airport Station Option
 Figure 3-93: Downtown San Diego Station Option
 Figure 4-1: LA-SD Runtime Summary – All Alignment Alternatives
 Figure 4-2: LA-SD Runtime Summary – LAUS Connection Alternatives
 Figure 4-3: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 1 (LAUS to I-605)
 Figure 4-4: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 1 (I-605 to Ontario International Airport)
 Figure 4-5: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 2 (Ontario International Airport to North Riverside County)
 Figure 4-6: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 2 (North Riverside County to Murrieta/Temecula)
 Figure 4-7: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 3 (Murrieta/Temecula to North San Diego County)
 Figure 4-8: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 3 (North San Diego County to San Diego)
 Figure 4-9: Commuter Rail Overlay Station Options
 Figure 5-1: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Summary Map)
 Figure 5-2: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 1)
 Figure 5-3: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 2)
 Figure 5-4: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 3)
 Figure 5-5: Alignment and Station Options Carried Forward

ABBREVIATIONS / ACRONYMS

AA.....Alternatives Analysis
AMAPAirport Multimodal Accessibility Plan
AmtrakNational Railroad Passenger Corporation
AuthorityCalifornia High-Speed Rail Authority
BNSF.....Burlington Northern Santa Fe Railway
CAHSTCalifornia High-Speed Train Project
Caltrans.....California Department of Transportation
CEQACalifornia Environmental Quality Act
CoasterRegional Rail Service operated by the North County Transit District
CWA.....Clean Water Act
EIREnvironmental Impact Report
EIS.....Environmental Impact Statement
EMTEngineering Management Team of the California High Speed Rail Authority
EPA.....Environmental Protection Agency
FRA.....Federal Railroad Administration
HSRHigh-Speed Rail
HSTHigh-Speed Train
LA-Anaheim.....Los Angeles to Anaheim
LA-SD.....Los Angeles to San Diego
LAUS.....Los Angeles Union Station
LAWALos Angeles World Airports
LOSSAN.....Los Angeles to San Diego Passenger Rail Corridor
LPALocally Preferred Alternative
March ARB.....March Air Reserve Base
MCAS Miramar ..Marine Corps Air Station Miramar
MetroLos Angeles Metropolitan Transportation Authority
MetrolinkCommuter rail service provided by the Southern California Regional Rail Authority
Mid-Coast LRT ..Light Rail Transit proposed by SANDAG to link Old Town to University City
MOUMemorandum of Understanding
MPH.....Miles per Hour
MTSSan Diego Metropolitan Transit District
NCTDNorth County Transit District
NEPA.....National Environmental Policy Act
OC/SD.....Orange County / San Diego
ONTOntario International Airport
PVL.....Perris Valley Line, Metrolink service though Riverside County
RASP.....Regional Aviation Strategic Plan
RCTC.....Riverside County Transportation Commission
ROWRight-of-Way
SANBAGSan Bernardino Associated Governments
SANDAGSan Diego Association of Governments

SCRRA.....Southern California Regional Rail Authority
SDCRAASan Diego County Regional Airport Authority
SDIASan Diego International Airport
SGVCOGSan Gabriel Valley Council of Governments
SoCal ICGSouthern California Inland Corridor Group
SprinterRegional rail service operated by the North County Transit District
TODTransit-Oriented Development
TWGTechnical Working Group
UCRUniversity of California Riverside
UPRRUnion Pacific Railroad
USACE.....United States Army Corps of Engineers
USFWS.....United States Fish and Wildlife Service

ES.0 EXECUTIVE SUMMARY

The California High Speed Rail Authority (the Authority) and the Federal Railroad Administration (FRA) are studying alternative alignments and stations for a high-speed train (HST) connection between Los Angeles and San Diego. The route development for the Los Angeles to San Diego via the Inland Empire Section (LA-SD Section) is built on the set of HST network alternatives and HST alignment alternatives that were analyzed in the *2005 Final Program EIR/EIS for the Proposed California High-Speed Train System* (Authority and FRA, December 2005). The Preliminary Alternatives Analysis Report for the Los Angeles to San Diego via the Inland Empire HST Section incorporates conceptual engineering, environmental evaluation, and outreach information to identify feasible and practicable alternatives to carry forward for further engineering and environmental review and evaluation in the environmental impact report/environmental impact statement (EIR/EIS) under the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA).

ES.1 Los Angeles to San Diego via the Inland Empire Section HST Project Background

The California HST is planned to provide intercity, high-speed train service on over 800 miles of tracks throughout California that will connect the major population centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. The HST system is envisioned as a state-of-the-art, electrically powered, high-speed, steel-wheel-on-steel-rail technology, which will include state-of-the-art safety, signaling, and automated train-control systems. The trains will be capable of operating at speeds of up to 220 mph over a fully grade-separated, dedicated track alignment, with an expected express trip time between Los Angeles and San Francisco of approximately 2 hours and 40 minutes and between Los Angeles and San Diego in 1 hour and 20 minutes.

The California HST project will be planned, designed, constructed, and operated under the direction of the Authority, a state governing board formed in 1996. The Authority's statutory mandate is to develop a high-speed train system that is coordinated with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

The LA-SD corridor extends over 170 miles, starting at a coordinated connection with the LA-Anaheim Section of the HST in Los Angeles and extending east through Los Angeles County to San Bernardino County, south through Riverside County to San Diego County, and ending in Downtown San Diego. Although the corridor is 170 miles in length, over 515 miles of alignment alternatives with over 801 miles of design options were reviewed. There is potential for up to 8 stations in the LA-SD Section, and 24 station options were reviewed. To facilitate the analysis of potential alignment alternatives, station locations, and station options, the LA-SD Section comprises three distinct subsections: Los Angeles Union Station (LAUS) to Ontario International Airport Subsection (S1), Ontario International Airport to Murrieta/Temecula Subsection (S2), and Murrieta/Temecula to San Diego Subsection (S3).

The Southern California Inland Corridor Group (SOCAL-ICG), which is composed of Southern California Association of Governments (SCAG), San Diego Association of Governments (SANDAG), Los Angeles County Metropolitan Transportation Authority (Metro), San Bernardino Associated Governments (SANBAG), Riverside County Transportation Commission (RCTC), Caltrans and the San Diego County Regional Airport Authority (SDCRAA), along with the San Gabriel Valley and Gateway Councils of Governments, regional technical working groups (TWGs), cities, counties, the United States Army Corps of Engineers, United States Fish and Wildlife Service, the California Department of Fish and Wildlife, the California Coastal Commission, MCAS Miramar, March ARB JPA, the Regional Water Quality Control Board, Los Angeles World Airports, the Port of San Diego and a wide range of public and private entities have provide input to the alignment and station options.

ES.2 Results From the Preliminary Alternatives Analysis

The Authority and FRA, in addition to performing conceptual engineering and environmental analysis, have engaged the agencies, the public, and communities throughout the LA-SD Section and continue to incorporate their input. The bullets below outline some of the key highlights from the work to date:

- The approach alignments to LAUS will continue to be studied by both the Los Angeles to Anaheim Section and the LA-SD Section teams, in consultation with affected parties. The approach alignments for the I-10 and SR 60 corridors connecting North of LAUS; and at Mission Boulevard, First Street and Sixth Street will continue to be studied.
- The 2005 Programmatic EIR/EIS preferred alternative consisted of the UPRR from Redondo Junction in Los Angeles, east to the Colton Curve. UPRR has stated that the UPRR right-of-way would not be made available for this project because of impacts on freight movements in and out of the Port of Los Angeles and the Port of Long Beach, and/or it would result in the revocation of shippers' rights, which is a violation of Federal Surface Transportation Board guidance. The alignments primarily utilizing UPRR right-of-way or land immediately adjacent to UPRR are recommended for withdrawal from further consideration.
- In the inland corridor between Ontario International Airport and Murrieta/Temecula, three alternatives are carried forward: one that provides direct access to the City of San Bernardino Downtown via the I-215 corridor, a second in the I-215 corridor that bypasses Downtown San Bernardino but does potentially provide access to residents of San Bernardino via a station in San Bernardino County; and a third that travels in the I-15 corridor and essentially bypasses the City of San Bernardino.
- Two alignments between Murrieta/Temecula and San Diego are carried forward: SDIA via I-15 to Mira Mesa and LOSSAN Corridor – University City North and Murrieta/Temecula to SDIA via SR 163 and I-8. The alignment between SDIA and the Downtown San Diego Santa Fe Depot has been withdrawn, as has the Santa Fe Depot Downtown Station option. One station location in Escondido is recommended to be carried forward. In addition, SDIA is the preferred station location of SANDAG and SDIA and is the only San Diego Station carried forward.

The Proposition 1A legislation that authorized the development of the HST System requires that the connection between Los Angeles and San Diego be completed within 1 hour and 20 minutes. Many subsection alignment alternatives and design options have been included for analysis along the 170-mile-long corridor. The alignment options recommended to be carried forward in the Preliminary Alternatives Analysis Report may be combined in a variety of ways. Currently there are various permutations of the alignment alternative carried forward that meet the 1 hour and 20 minute travel time mandate. Detailed design and environmental analysis may result in changes to the alternative alignments that increase or decrease these times. The Preliminary Alternatives Analysis Report does not resolve these conflicts. The need for travel time trade-offs will be better informed by the results of the evaluations contained within the Draft EIS/EIR, and by subsequent preliminary engineering. The final alignment and option decisions accounting for the impact on travel time will be represented by the final alignment defined in the Final EIS/EIR.

The Preliminary Alternatives Analysis process has reduced the alignment options being considered from 801 miles to 288 miles, the station alternative locations from 8 to 7, and the total individual station location options from 24 to 13. The results of the preliminary alternatives analysis recommendations are graphically portrayed in Figures ES-1, ES-2, and ES-3. The alignments and station options carried forward are summarized in Figure ES-4. Alignments and stations recommended to be carried forward for EIR/EIS review are indicated by their recommended design option color (red, blue, or green). Those stations and alignments that are not recommended to be carried forward are indicated in grey. Tables ES-1, ES-3 and ES-6 summarize the recommended disposition of the alignment alternatives evaluated for each subsection. Tables ES-2, ES-4 and ES-6 summarize the recommended disposition of the station options evaluated for each subsection.

ES.2.1 Alignment Alternatives and Station Options Carried Forward (Subsection 1) LAUS to Ontario International Airport

Subsection 1 was divided into the areas as described below and each lists the alignments and associated station(s) to be carried forward for further evaluation. Refer to Figure ES-1 and Tables ES-1 and ES-2 respectively for the alignment and station option recommendations.

Alignments – LAUS to I-605/I-10

All I-10 and SR-60 alignments and their respective connections to LAUS are recommended to be carried forward, including the following:

- LAUS to I-605 via I-10 (Alternative S1-A1)
- LAUS to I-605 via SR 60 (Alternative S1-A2)

Alignments – I-605/I-10 to Ontario International Airport

One alignment alternative between I-605/I-10 and Ontario International Airport, with two options, is recommended to be carried forward, including the following:

- I-605/I-10 to Ontario International Airport via Holt Boulevard above-grade approach (S1-A6.1)
- I-605/I-10 to Ontario International Airport via 1st Street/State Street (S1-A6.2)

San Gabriel Valley Station Alternative

The following four station options are recommended to be carried forward for further evaluation in Subsection 1:

- El Monte Transit Center Option
- West Covina Station Option
- Pomona Holt Station Option
- Pomona First Street Station Option

ES.2.2 Alignment Alternatives and Station Options Carried Forward (Subsection 2) Ontario International Airport to Murrieta/Temecula

Subsection 2 was divided into the areas as described below and each lists the alignments and associated station(s) to be carried forward for further evaluation. Refer to Figure ES-2 and Tables ES-3 and ES-4 respectively for the alignment and station option recommendations.

Alignments - I-215

Two I-215 alignment alternatives are recommended to be carried forward:

- Metrolink corridor through San Bernardino and south along I-215 (S2-A1) – San Bernardino/I-215 through Riverside via Chicago Avenue (S2-A1.1)
- I-10 Corridor through Riverside and south along the I-215 (S2-A3) – I-10 through Riverside/I-215 via Chicago Avenue (S2-A3.1)

Alignments - I-15

One I-15 alignment alternative is recommended to be carried forward:

- I-15 Corridor (S2-A4) – I-15 to Corona (S2-A4.2)

Ontario International Airport Station Alternative

- Ontario International Airport

San Bernardino Station Alternative

- City of San Bernardino Station Option
- County of San Bernardino Station Option

North Riverside County Station Alternative

- March ARB Station Option
- Corona Station Option

Murrieta Station Alternative

- Murrieta Station – I-215 Option
- Murrieta Station – I-15 Option

ES.2.3 Alignment Alternatives and Station Options Carried Forward (Subsection 3) Murrieta/Temecula to San Diego

Subsection 3 was divided into the areas as described below and each lists the alignments and associated station(s) to be carried forward for further evaluation. Refer to Figure ES 3 and Tables ES 5 and ES 6 respectively for the alignment and station option recommendations.

Alignment Alternatives

Two alignment alternatives, and one design option in Escondido, are recommended to be carried forward:

- Murrieta/Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor (Alternative S3-A2) - University City North (S3-A2.2)
- Murrieta/Temecula to SDIA via SR 163 and I-8 (Alternative S3-A3)
- Escondido Design Options - Escondido Station I-15 Option (S3-B1.1)

The following two station options are recommended to be carried forward for further evaluation in Subsection 3:

Escondido Station Alternative

- Escondido Station – I-15 Option

San Diego Station Alternative

- San Diego International Airport Station Option

ES.3 Alternative Analysis Evaluation Measures

The alignment alternatives, station locations, and design options carried forward in this Preliminary Alternatives Analysis Report were assessed for each of the project objectives and evaluation measures. This information was then used to determine which alternatives are feasible and practicable and should be carried forward into preliminary engineering design and environmental review as part of the Draft EIR/EIS. The primary evaluation measures are listed below:

- Design objectives (including measures such as travel time and cost)
- Land use (including measures such as consistency with land use and general plans)
- Constructability (including measures such as guideway type construction and access to the corridor)
- Community impacts (including measures such as amount of land acquisition)
- Natural resources (including measures such as impacts on wetlands, potential threatened and endangered species habitat, and important farmlands)
- Environmental quality (including measures such as the number of sensitive noise receptors)
- Additional considerations (including measures such as the ability to meet project purpose, and support by the public and agencies).

ES.4 Public and Agency Outreach Efforts

The LA-SD Section has benefited significantly from input received from the Authority's partnering agencies, cities, and the public since the original development of an LA-SD Section in the 2005 Statewide Program environmental document. This starting point was expanded based on the ongoing input received from numerous stakeholders and the public, which began in 2007. This stakeholder input process was formalized in 2008 with the formation of the Southern California Inland Corridor Group (So Cal ICG) via a memorandum of understanding (MOU) with the Authority. In addition and as a subset of the So Cal ICG, TWGs in each of the four counties (i.e.; Los Angeles, San Bernardino, Riverside and San Diego) were established to include technical staff representatives from all affected and adjacent local cities and jurisdictions.

Recognizing the importance of the local, regional, state, and federal agency involvement in the HST planning process, the Authority has executed various MOUs to work in partnership on the HST project development. MOUs have been executed between the Authority and the following regional agencies in the LA-SD Section:

- SCAG
- Metro
- SANBAG
- RCTC
- SANDAG
- SDCRAA
- Statewide Caltrans (Districts 7, 8, and 11 encompass the LA-SD Section)

Since 2008, TWGs have been in place to support the LA-SD Section. The four TWGs (one per county) are comprised of city and public agencies from all potentially affected and/or interested cities along the alternative alignments. The TWGs provide local perspective and input based on their knowledge and awareness of the alignments and station options on an ongoing basis. In turn, TWG representatives provide internal briefings and updates to their elected bodies (e.g., city councils and board of supervisors) providing another link to the elected leadership of the LA-SD Section. Five rounds (four meetings per round, one per county) of TWG meetings have been held since 2008. The TWG meetings supported the Authority's conceptual engineering, feasibility analysis, and ultimately, the evaluation of the alternatives and stations for the Preliminary Alternatives Analysis Report.

A comprehensive public involvement program was developed to seek input and advise the public and agencies of the project developments during the environmental review process. As discussed above, pre-scoping activities were initiated in 2008, including the development of project information materials, early engagement with affected and adjacent cities and counties, and various forms of communication with interested parties and media contacts. Formal public scoping was completed for the LA-SD Section in September through November 2009. On September 17, 2009, a Notice of Preparation (NOP) announcing the preparation of the EIR was distributed to the State Clearinghouse, elected officials (federal, regional, and local), and federal, state and local agencies including the planning and

community development directors in each county, as well as the interested public. A Notice of Intent (NOI) announcing the preparation of the EIS was published in the *Federal Register* on September 24, 2009.

During the 2-month formal public scoping period, 12 public scoping meetings and 2 resource agency scoping meetings were held. Appendix D identifies when and where these scoping meetings occurred for the LA-SD Section. Approximately 812 people attended the open houses, approximately 1,243 written or recorded oral comments were submitted by individuals and organizations, and 62 agencies provided comments.

Two meetings were held with the regulatory resource agencies to provide information about the initial set of alternative alignments developed from scoping comments, discuss results of the preliminary studies, and review the current alternative alignments and station locations under consideration. The USACE, USFWS, USEPA, SWRCB, CDFG, local water boards, and the California Coastal Commission attended the meetings. The meetings were held in San Diego on February 1, 2010 and June 22, 2010.

ES.5 Next Steps

The Preliminary Alternatives Analysis Report recommends to the Authority that the alignments and station options shown on Figure ES-4 be carried forward into the EIS/EIR for further evaluation. Following the presentation of the Preliminary Alternatives Analysis Report in March 2011, the Authority will share all findings with the public and solicit additional input. For the LA-SD Section, approximately 24 public open house meetings are planned across the 4 counties. The open-house meetings will be held close to the alternatives and station locations that are recommended to be carried forward. The Authority will engage with the public to receive another round of input on the latest evaluation of these alternatives. All input will be documented and used in the ongoing refinement of the alternatives.

In addition, leading up to and following the presentation of the Preliminary Alternatives Analysis Report to the Authority Board in March 2011, established agency and public outreach efforts will continue as follows:

- The So Cal ICG will continue to meet on a monthly basis to review materials regarding the preliminary alternatives analysis, to understand the direction of the Authority Board and to continue to provide guidance.
- Additional follow-up meetings with specific corridor and station cities, as needed, including the San Gabriel Valley Council of Governments Working Group, the Riverside County Transportation Commission High-Speed Rail Ad Hoc Committee, and the San Diego County Agencies Group.
- Continued presentations and meetings with stakeholders along the corridor regarding the recommendations in the Preliminary Alternatives Analysis Report and the direction of the Authority Board.
- Ongoing discussions and meetings with regulatory resource agencies and Native American Tribes.

Agency and public comments received during the development of this Preliminary Alternatives Analysis Report will be evaluated, and any recommended changes to the alignment alternatives will be documented in the Supplemental Alternatives Analysis Report and presented to the Authority Board later (to be determined).

Figure ES-1: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 1)

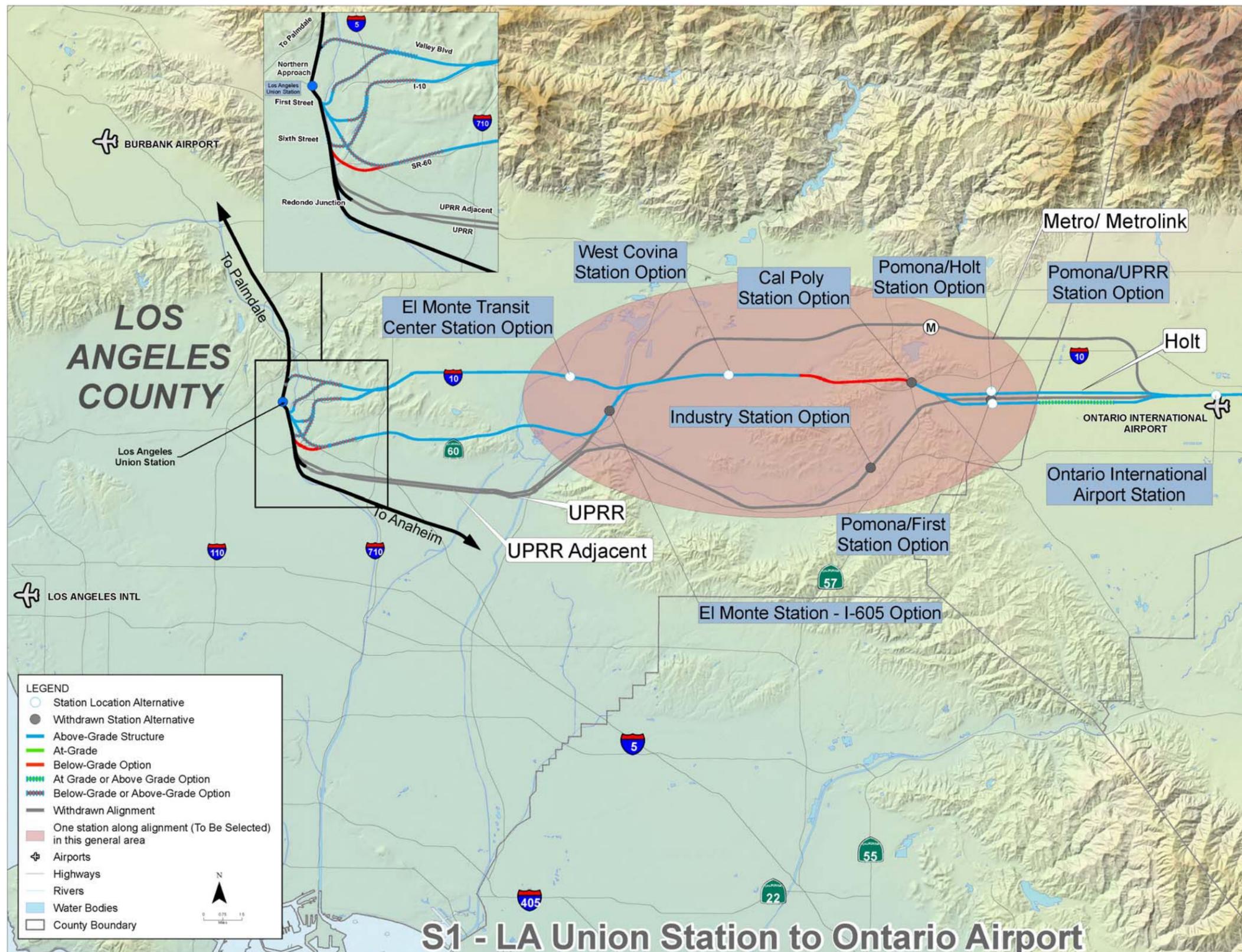


Table ES-1: Alignment Alternatives Evaluation Matrix (Subsection 1)

ALIGNMENT ALTERNATIVE/STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary									COMMENTS
	Carried Forward	Withdrawn	Project Goals/Objectives	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/Ridership	Community Impact	Environment		
LAUS to I-605												
S1-A1: APPROACH OPTIONS TO LAUS plus INTERSTATE 10 TO I-605 (I-10)												
I-10 via North above-grade approach (A1.1)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
I-10 via North below-grade approaches (A1.2.1)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers although reduced by below grade alignment connecting to LAUS.	
I-10 via North below-grade approaches (A1.2.2)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers although reduced by below grade alignment connecting to LAUS.	
I-10 via Mission Road above-grade approach (A1.3)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
I-10 via Mission Road below-grade approach (A1.4)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers, although reduced by below grade alignment connecting to LAUS.	
I-10 via I-5/First Street above-grade approach (A1.5)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
I-10 via I-5/First Street below-grade approach (A1.6)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	
I-10 via I-5/Sixth Street above-grade approach (A1.7)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
I-10 via I-5/Sixth Street below-grade approach (A1.8)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	
S1-A2: STATE ROUTE 60 (SR-60)												
SR-60 via First Street above-grade approach (A2.1)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
SR-60 via First Street below-grade approach (A2.2)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	
SR-60 via Sixth Street below-grade approach (A2.3)	✓										Community disruption, visual impacts, and impacts to aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
S1-A3: UNION PACIFIC RAILROAD (UPRR)												
LAUS to east of 605 via UPRR via below-grade 6th Street connection to LAUS (A3.1)		✓			P	P			S		UPRR operational and capacity constraints affecting critical freight rail corridor, extensive land use impacts, and constrained geometrics make this alternative impracticable.	
LAUS to east of 605 via UPRR via above-grade Redondo Junction connection to LAUS (A3.2)		✓			P	P			S	S	UPRR operational and capacity constraints affecting a critical freight rail corridor, extensive land use impacts, and constrained geometrics make this alternative impracticable.	
S1-A4: UPRR ADJACENT												
LAUS to I-605 via land adjacent to the UPRR via 6th Street below-grade connection to LAUS (A4.1)		✓			P	P			S	S	Adjacent to ROW; would result in substantial property acquisitions and impacts on UPRR-related industrial activities; constrained geometrics make this alternative impracticable.	
LAUS to I-605 via land adjacent to the UPRR via Redondo Junction above-grade connection to LAUS (A4.2)		✓			P	P			S	S	Adjacent to ROW; would result in substantial property acquisitions and impacts on UPRR-related industrial activities; constrained geometrics make this alternative impracticable.	
I-605 to Ontario International Airport												
S1-A5: METROLINK TO ONT												
I-605/I-10 to Ontario International Airport via Metrolink (A5)		✓			P	P			S	S	Rail conflicts and insufficient right-of-way in shared-use corridor and high disruption to local communities make this alternative impracticable.	
S1-A6: I-10 AND HOLT												
I-605/I-10 to Ontario International Airport via I-10/Holt, Holt Boulevard above-grade approach (A6.1)	✓										Community impacts, noise and visual impacts, and traffic impacts.	
I-605/I-10 to Ontario International Airport via First Street/State Street	✓										Community impacts, noise and visual impacts, and traffic impacts.	
S1-A7: UPRR												
S1-A7: UPRR from east of I- 605 to Ontario Intl. Airport (A7)		✓			P	P			S	S	UPRR operational and capacity constraints affect critical freight rail corridor, impacts on surrounding properties, and constrained geometrics make this alternative impracticable.	

Table ES-2: Station Option Evaluation Matrix (Subsection 1)

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/Ridership	Community Impact	Environment	
STATION ALTERNATIVES											
San Gabriel Valley Station Alternatives											
El Monte Transit Center North Option	✓										Station integrated with eastern terminus station of El Monte Busway serving downtown Los Angeles (Metro Silver Line), a major San Gabriel Valley intermodal center. Station serves Downtown El Monte; within 0.75 mile of El Monte Metrolink Station; easy access from I-10 freeway. Transit-oriented development (TOD) potential.
El Monte Station – I-605 Option		✓			S		S		P	S	Station site not close to urban center and does not provide major intermodal connection. Potentially encroaches on the Rio Hondo River channel and would displace a high school campus and residential areas.
West Covina Station Option	✓										Station adjacent to downtown West Covina and major shopping centers, easy access from I-10 freeway. Site is located approximately equidistant between Los Angeles and Ontario International Airport HST stations. Significant site constraints require further study and may require local design and siting options.
Cal Poly Station Option		✓			P		S		S	S	This station location is not close to an urban center and not at a walkable distance to the Cal Poly campus. Facilities associated with this station would displace open space and residential developments and visually affect the Forest Lawn Cemetery, south of I-10. The station site has poor accessibility to I-10, no intermodal connections, and is not suited for TOD development.
Industry Station Option		✓	✓								Alignment alternative for this station was withdrawn.
Pomona Holt Station Option	✓										Station within 0.25 mile of Downtown Pomona and within two blocks of Metrolink/Amtrak station and bus intermodal center. Accessed by major north-south and east-west arterial streets (Holt Ave. and Garey Ave.). Station displaces churches and other institutional and commercial uses.
Pomona UPRR Station Option		✓	✓								Alignment alternative for this station was withdrawn.
Pomona First Street Station Option	✓										Station location has excellent intermodal connections and downtown access. There are feasibility issues with this station location, including a narrow, active railway corridor, lack of parking, potential impacts on historical resources including adjacent downtown commercial structures and the Historical Santa Fe Depot.

Figure ES-2: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 2)

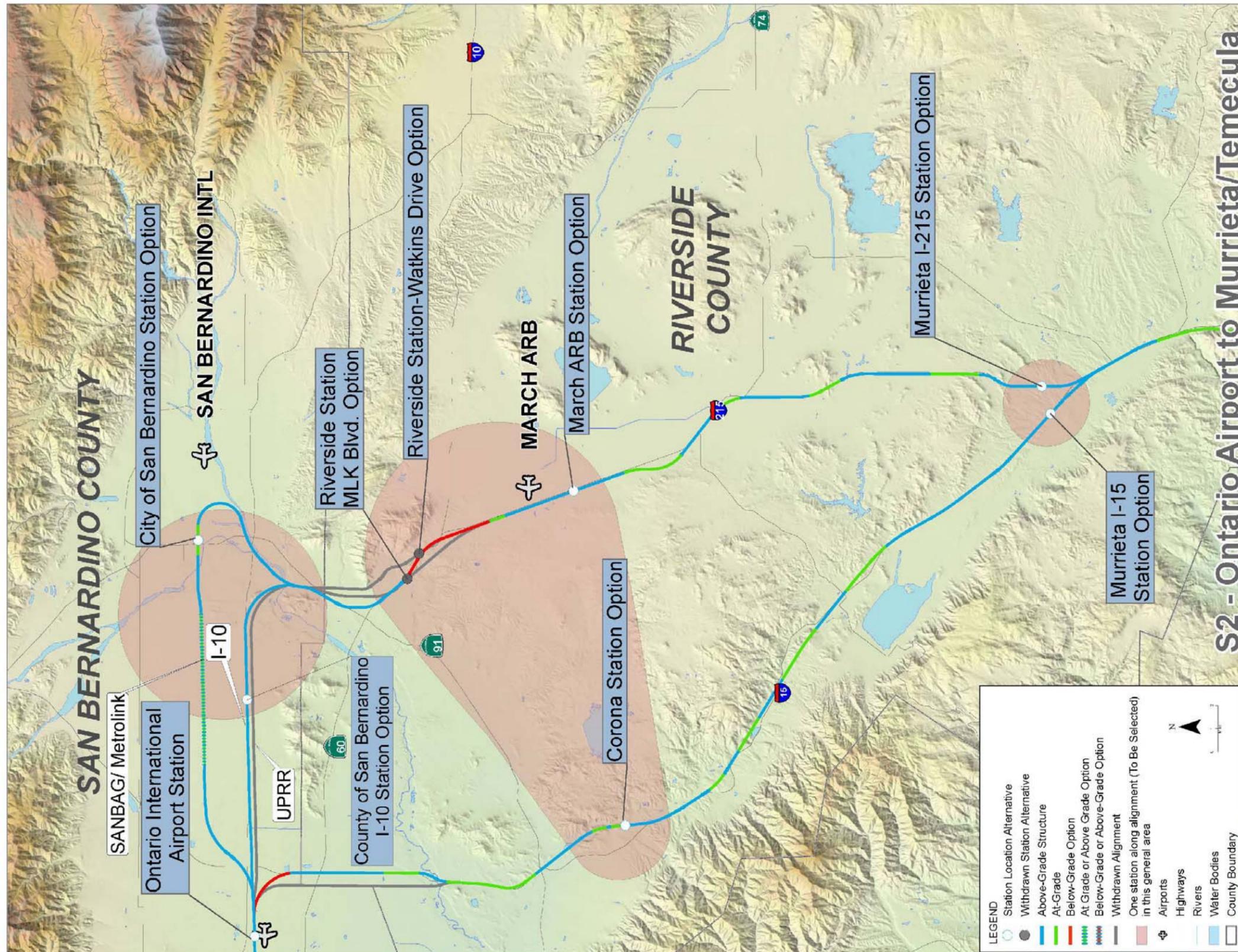


Table ES-3: Alignment Alternatives Evaluation Matrix (Subsection 2)

ALIGNMENT ALTERNATIVE/STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Project Goals and Objectives	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
Ontario to Murrieta/Temecula											
S2-A1 (San Bernardino/I-215) Metrolink Corridor through San Bernardino and South along the I-215											
San Bernardino/I-215 through Riverside via Chicago Avenue (A1.1)	✓										Community impacts, noise and visual impacts, biological resources, floodplain impacts, state water project, and major utility impacts.
San Bernardino/I-215 through Riverside via Iowa Avenue (A1.2)		✓			P				P	S	Higher level of construction impacts on residential, commercial, and industrial properties than Chicago alternative; Local stakeholder agreement supports the Chicago alignment.
San Bernardino/I-215 through Riverside via UC-Riverside (A1.3)		✓			P				P	S	Not consistent with the UC-Riverside Master Plan; construction impacts on existing and planned UC Riverside facilities; Local stakeholder agreement supports the Chicago alignment.
S2-A2 (UPRR/I-215) UPRR Corridor through Riverside and South along the I-215											
Riverside/I-215 through Riverside via Chicago Avenue (A2.1)		✓			P	P			S		Existing and future railroad operational constraints and impacts on major freight yard operations at Colton result in the alignment being impracticable.
Riverside/I-215 through Riverside via Iowa Avenue (A2.2)		✓			P	P			S		Existing and future railroad operational constraints and impacts on major freight yard operations at Colton result in the alignment being impracticable.
Riverside/I-215 through Riverside via UC Riverside (A2.3)		✓			P	P			S		Existing and future railroad operational constraints and impacts on major freight yard operations at Colton result in the alignment being impracticable.
S2-A3 (I-10/I-215) I-10 Corridor through Riverside and South along the I-215											
I-10 through Riverside/I-215 via Chicago Avenue (A3.1)	✓										Biological resources and state water project and utility impacts.
I-10 through Riverside/I-215 via Iowa Avenue (A3.2)		✓			P				P	S	Higher level of construction impacts on residential, commercial, and industrial properties than Chicago alternative; Local stakeholder agreement supports the Chicago alignment.
I-10 through Riverside/I-215 via UC-Riverside (A3.3)		✓			P	P	S		P	S	Not consistent with the UC-Riverside Master Plan; construction impacts on existing and planned UC Riverside facilities; Local stakeholder agreement supports the Chicago alignment.
S2-A4 (I-15) I-15 Corridor											
I-15 Corridor – Milliken/Hamner to Corona (A4.1)		✓				P			S	P	Impacts on Section 6(f) conservation area for the Delhi Sands flower-loving fly (endangered species), in addition to community, noise, and visual impacts, and impacts on equestrian trails; MSHCP core area, waterway crossings, and Santa Margarita Ecological Reserve.
I-15 Corridor – I-15 to Corona (A4.2)	✓										Community, noise, and visual impacts, and impacts on equestrian trails; MSHCP core area, waterway crossings, and Santa Margarita Ecological Reserve.

Table ES-4: Station Option Evaluation Matrix (Subsection 2)

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
STATION ALTERNATIVES											
Ontario International Airport Station Alternative											
Ontario International Airport Station	✓										Station connects to Ontario International Airport passenger terminals, future extension of Metro Gold Line, possible Metrolink (if service relocates to UPRR corridor in future); easy access to I-10 and I-15 freeways. Significant TOD potential. Final station location determined by final alignment alternative.
San Bernardino Station Alternative											
City of San Bernardino Station Option	✓										Station located on site of future Downtown Transit Center (includes extension of Metrolink service from existing Metrolink/Amtrak station). Site within 0.25 mile of civic/commercial core and baseball stadium. Significant TOD potential. Easy access from I-215 freeway.
County of San Bernardino Station Option	✓										This station option would provide access to the HST System for the San Bernardino area if the City of San Bernardino Station Option cannot be achieved. This station location would be near a future freeway interchange that would provide intermodal connectivity.
North Riverside County Station Alternatives											
Riverside Station – Martin Luther King Boulevard Option		✓							P		City of Riverside and UC-Riverside support the station at March ARB.
Riverside Station – Watkins Drive Option		✓	✓								Alignment alternative for this station was withdrawn.
March ARB Station Option	✓										Station not near traditional urban centers but serves region of significant urban growth (Moreno Valley); interfaces with future Metrolink and passenger air services. City of Riverside and UC-Riverside expressed a preference for this site. Site affects adjacent military cemetery. Easy access from I-215 freeway.
Corona Station Option	✓										Station in suburban location (4 miles southeast of Downtown Corona) but serves area of significant upscale growth along I-15 corridor. Adjacent to regional retail/commercial/residential center at I-15/Cajalco Road interchange. Possible significant TOD potential. Easy access from I-15 freeway.
Murrieta Station Alternatives											
Murrieta I-15 Station Option	✓										This station supports the I-15 alignment alternative. Station located within 1 mile of Murrieta town center and 3 miles of Temecula town center; easy access from I-15 and I-215 freeways, existing context is commercial/mixed use center in area undergoing rapid urbanization. Significant TOD potential. Both cities support location.
Murrieta I-215 Station Option	✓										This station supports the I-215 alignment alternative. Station located within 2 miles of Murrieta town center and 3 miles of Temecula town center; easy access from I-15 and I-215 freeways; existing context is commercial/mixed-use center in area undergoing rapid urbanization. Significant TOD potential. Both cities support location.

Figure ES-3: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 3)

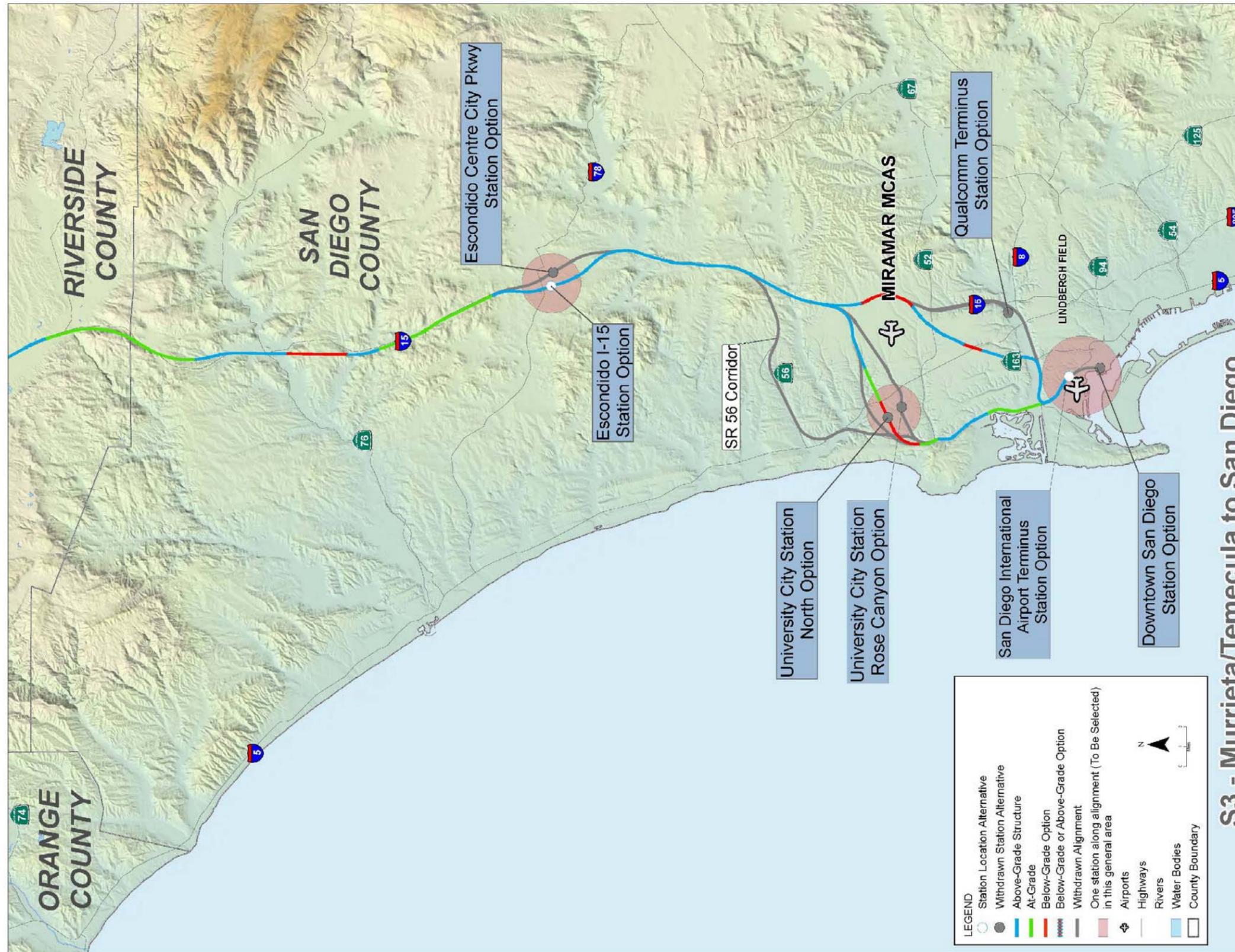


Table ES-5: Alignment Alternatives Evaluation Matrix (Subsection 3)

ALIGNMENT ALTERNATIVE/STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary									COMMENTS
	Carried Forward	Withdrawn	Project Goals and Objectives	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/Ridership	Community Impact	Environment		
Murrieta/Temecula to San Diego												
S3-A1 (SR-56) Murrieta/Temecula to SDIA via SR 56 and LOSSAN Corridor												
Murrieta/Temecula to SDIA via SR 56 and LOSSAN Corridor		✓									P P	USACE, USFWS and Coastal Commission have expressed concern related to impacts on coastal canyon, vernal pool and the California Gnatcatcher. Highest environmental impacts for alternatives in Subsection 3.
S3-A2 (University City) Murrieta/Temecula to San Diego Alternative Routes												
Murrieta/ Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor – Carroll Canyon (A2.1)		✓									P P	USACE, USFWS and Coastal Commission have expressed concern related to impacts on coastal canyon, vernal pool and the California Gnatcatcher. Impacts on aquatic resources, critical wildlife connectivity and multi-habitat planning areas (MHPA) in the MSCP.
Murrieta/ Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor – University City North (A2.2)	✓											Biological resource impacts.
Murrieta/ Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor - Rose Canyon (A2.3)		✓									P P	USACE, USFWS and Coastal Commission have expressed concern related to impacts on coastal canyon, vernal pool and the California Gnatcatcher. Second highest environmental impacts for alternatives in Subsection 3.
S3-A3 (SR-163/I-8) Murrieta/Temecula to SDIA via SR163 and I-8												
Murrieta/Temecula to SDIA via SR163 and I-8	✓											Biological resource concerns, impacts on MCAS Miramar.
S3-A4 (I-15/I-8) Murrieta/Temecula to SDIA via I-15 and I-8												
Murrieta/Temecula to SDIA via I-15 and I-8		✓		P								Third level (over 120-foot tall) guideway would be required through Mission Valley.
S3-A5 (Qualcomm) Murrieta/Temecula to Qualcomm Stadium via I-15 and terminate												
Murrieta/Temecula to Qualcomm Stadium Terminus via I-15		✓		P							S	Alignment does not meet project purpose and need to access airports and city centers related to the Qualcomm Stadium terminus, has substantive constructability challenges, and SANDAG and the City of San Diego prefer the SDIA Station Terminus.
S3-B1: ESCONDIDO DESIGN OPTIONS (From Country Club to Via Rancho Parkway)												
Escondido Station I-15 Option (B1.1)	✓											Community impacts, noise and visual impacts, traffic impacts.
Escondido Station Centre City Parkway Option (below-grade) (B1.2)		✓			S						P	Alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core; City of Escondido expressed preference for the I-15 option.
Escondido Station Centre City Parkway Option (above-grade) (B1.3)		✓			S						P	Alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core; City of Escondido staff prefers the I-15 option.
S3-B2: DOWNTOWN SAN DIEGO												
Downtown San Diego Station Option (SDIA to Santa Fe Depot) – Above-Grade (B2.1)		✓			S						P	Land use and traffic impacts, would require vertical and horizontal separation from AMTRAK, Coaster and Trolley. Impacts on historic resources, and the City of San Diego and SDIA have expressed preference for the SDIA Station.
Downtown San Diego Station Option (SDIA to Santa Fe Depot) – Below-Grade (B2.2)		✓			S						P	Potential to encounter groundwater and hazardous wastes, City of San Diego and SDIA have expressed preference for the SDIA Station.

Table ES-6: Station Option Evaluation Matrix (Subsection 3)

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/Ridership	Community Impact	Environment	
STATION ALTERNATIVES											
Escondido Station Alternatives											
Escondido Station I-15 Option	✓										Station located 0.5 mile from Escondido Transit Center, not within walking distance of downtown. Potential connection to Sprinter commuter rail requires new Sprinter platform at station location. Site affects Sprinter yard and operations and maintenance complex. Reasonable access from I-15 and SR 78 freeways.
Escondido Station Centre City Parkway Option		✓	✓								Alignment alternative for this station was withdrawn.
University City Station Alternatives											
University City Station North Option		✓		P					S		Deep underground station directly beneath major high-density, mixed-use center. Because of existing build-out, future TOD potential may be limited. Surface constraints limit access points; construction impacts may be high. The City of San Diego and SANDAG have withdrawn their support for a station in this location.
University City Station – Rose Canyon Option		✓	✓								Alignment alternative for this station was withdrawn.
San Diego Station Alternatives											
Qualcomm Stadium Terminus Station Option		✓	✓								Alignment alternative for this station was withdrawn.
San Diego International Airport Station Option	✓										Station adjacent to planned "Destination Lindbergh" airline terminal complex. Major intermodal center connects downtown airport, HST, intercity and commuter rail, and San Diego Trolley. Easy access from San Diego freeways. Not within walking distance of city center in Downtown San Diego.
Downtown San Diego Station Option		✓			S				P	S	Elevated or underground station adjacent to historical Santa Fe Depot. Direct access to downtown. Constrained corridor with existing high-rise structures; visual and noise impacts. SANDAG supports the SDIA Alternative as site for HST terminus station.

1.0 INTRODUCTION

The California High-Speed Rail Authority (the Authority) is studying alternate alignments for a high-speed train (HST) section between Los Angeles and San Diego via the Inland Empire. This Preliminary Alternatives Analysis Report incorporates conceptual engineering information and identifies feasible and practicable alternatives to carry forward for environmental review and evaluation in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) under the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA) for the Los Angeles to San Diego via the Inland Empire (LA-SD) Section of the California HST Project.

Additionally, the Authority and the Federal Railroad Administration (FRA) have entered into a memorandum of understanding (MOU) with the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) to integrate the NEPA process with the Clean Water Act (CWA) Section 404 process. The Section 404 (b)(1) process includes an alternatives analysis and, therefore, the objective is for EPA and USACE to reach concurrence with the Authority and the FRA on the alternatives to be carried forward into the EIR/EIS.

1.1 California HST Project Background

The California HST System is planned to provide intercity, high-speed train service on more than 800 miles of tracks throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego (Figure 1.1). The HST System is envisioned as a state-of-the-art, electrically powered, high-speed, steel-wheel-on-steel-rail technology, which will include contemporary safety, signaling, and automated train-control systems. The trains will be capable of operating at speeds of up to 220 miles per hour (mph) over a fully grade-separated, dedicated track alignment, with an expected express trip time between Los Angeles and San Francisco of approximately 2 hours and 40 minutes, and Los Angeles to San Diego of no more than 1 hour and 20 minutes.

The California HST project will be planned, designed, constructed, and operated under the direction of the Authority, a state governing board formed in 1996. The Authority's statutory mandate is to develop a high-speed rail system that is coordinated with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

1.2 Los Angeles to San Diego via the Inland Empire Section EIR/EIS Background

The LA-SD Section is one section of the California HST System selected at the conclusion of the 2005 Final Statewide Program EIR/EIS process. The LA-SD section alignment included the 2005 Program EIR/EIS is referred to in this Alternatives Analysis as the Program Alignment. In the LA-SD Section, the Program Alignment corridor extends approximately 170 miles, starting at the Los Angeles Union Station (LAUS), where it connects with the Los Angeles to Anaheim and the Los Angeles to Palmdale HST Sections, and then runs east through the San Gabriel Valley to Ontario and Riverside and then south to San Diego.

In the fall of 2009, the Authority, in cooperation with the FRA began a project environmental review of the LA-SD Section per requirements of CEQA and NEPA. In October and November 2009, scoping meetings were held to receive input on the scope of issues that should be analyzed in the EIR/EIS. These meetings are summarized in the *Los Angeles to San Diego via the Inland Empire Section High-Speed Train Project EIR/EIS Draft Scoping Report (December 2009)*.

Input gathered at these scoping meetings, numerous stakeholder and outreach meetings in each of the four counties in the LA-SD Section (i.e., Los Angeles, San Bernardino, Riverside, and San Diego Counties), and other comments were distilled to produce initial alignment alternatives and station and design options for consideration in this Alternatives Analysis Report, as described in Section 3.3, Initial Development of Alternatives.

Figure 1-1: High Speed Train Initial Study Corridors



2.0 ALTERNATIVES DEVELOPMENT PROCESS

The process for this study involves the creation and refinement of alternatives, through a series of processes that are intended to compare alternatives. This study follows a defined alternative analysis process as described in the Technical Memorandum *Alternatives Analysis Methods for Project EIR/EIS, Version 2 (Authority, October 2009)* and uses both qualitative and quantitative measures that reflect a mixture of applicable policy and technical considerations. The techniques that are used to gather information and to develop and compare alternatives are described below.

Field Inspections of Corridors: Planners, engineers, and analysts with experience in railroad operations conducted field inspections of the potential alignment alternatives, right-of-way, and station locations to identify conditions and factors that may not be visible in aerial photos or on maps. Over the course of the study, field inspections became progressively more detailed as the alternatives were refined during planning and engineering work.

Project Team Input and Review: The project team conducted team meetings to discuss alternatives and local issues based on input provided by the public and stakeholders that potentially affect alignments.

Qualitative Assessment: A number of the qualitative measures used to describe the alternative alignments were developed by project team members with experience in construction and operation of HST and other transportation systems. These measures included constructability, accessibility, operations, maintenance, right-of-way, public infrastructure impacts, railway infrastructure impacts, and environmental impacts.

Engineering Assessment: Engineering assessments were provided for a number of measures that could be readily quantified at this stage of project development. The engineering assessments provided information on project length, travel time, and configuration of key features of the alignment alternatives, such as horizontal and vertical configurations and the presence of existing infrastructure.

Geographic Information System (GIS) Analysis: The bulk of the assessment was performed using GIS data, which enabled depictions of the project's interactions with a variety of measurable geographic features, both natural and built. GIS data was used to assess impacts on farmland, water resources, geologic/seismic faults, wetlands, threatened and endangered species, cultural resources, current urban development, and infrastructure.

Stakeholder and Public Input: An extensive agency and stakeholder involvement process was conducted through a series of outreach meetings with local cities, regional transportation planning agencies and commissions, regulatory agencies, and the public. Input from the agencies and stakeholders were used to identify key areas of concern and refine the preliminary alternative alignments and station locations. The input received from the public and stakeholders has been an essential part of the creation and refinement of the alternatives. Section 3.3.1, Agency Coordination and Public Outreach, summarizes the extensive agency and public outreach undertaken as part of the development of this Alternatives Analysis Report.

Assessment and analysis measures have been developed for each step in the process outlined above. The evaluation measures as applied are progressively more technical and quantitative as alternatives evolve.

2.1 HST Project Purpose

The purpose of the statewide HST System is to provide a reliable high-speed electric-powered train system that links the major metropolitan areas of the state, and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California's unique natural resources (Authority and FRA 2005). The Authority's statutory mandate is to plan, build, and operate an HST System coordinated with California's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail lines, highways, and airports. The Authority has responded to this mandate by adopting the following objectives and policies for the proposed HST system:

- Provide intercity travel capacity to supplement critically overused interstate highways and commercial airports.
- Meet future intercity travel demand that will be unmet by present transportation systems, and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operation and maintenance costs.
- Preserve environmental quality and protect California's sensitive environmental resources by reducing emissions and vehicle miles traveled for intercity trips.

The approximately 170-mile-long LA-SD Section is an essential component of the statewide HST System. It is the Southern California terminus of the HST System and will connect to the rest of the statewide system. As such, the LA-SD Section will provide greater access to a new transportation mode and will contribute to increased mobility in Southern California and throughout California. This will include improving mobility and reducing congestion at regionally significant airports from Los Angeles through the Inland Empire to San Diego by providing HST in this corridor; maximizing intermodal connectivity at HST stations; providing as many as seven HST stations within the LA-SD Section (excluding Los Angeles Union Station, which is part of the Los Angeles to Anaheim Section); supporting-travel time reduction between HST stations along the LA-SD Section to meet the mandated express travel time of 1 hour and 20 minutes; and providing opportunity for regional overlay services using HST tracks/infrastructure where appropriate.

2.2 Identification of Alternatives to be Carried Forward

The aim of this report is to document the evaluation process and to identify alternatives that should be carried forward through the environmental process and engineering design. Significant issues that would qualify an alternative to be carried forward for further consideration include the following:

- Alternative meets purpose and need and the project objectives in providing a sustainable reduction in travel time between major urban centers.
- Alternative has no environmental or engineering issues that would make approvals infeasible.
- Alternative is feasible and practical to construct.
- Alternative reduces or avoids adverse environmental impacts.

2.3 HST Design Objectives

To determine each alternative's ability to meet the HST Project purpose and need, the alternatives are evaluated using HST system performance criteria that address design differences and qualities in the alignment and station locations. These objectives and measures are summarized in Table 2-1.

Table 2-1: Alignment and Station Performance Objectives and Evaluation Measures

Design Objectives	Criteria
Maximize ridership/revenue potential	Travel Time ^a
	Route Length
Maximize connectivity and accessibility	Intermodal connections
Minimize operating and capital costs	Operating costs
	Capital cost
^a Proposition 1A, the Safe, Reliable, High-Speed Passenger Train Bond Act, adopted by California voters in November 2008, established a maximum travel time of 1 hour and 20 minutes between Los Angeles Union Station and San Diego.	

2.4 Comparison of Project Alternatives

In addition to the HST Project performance objectives and evaluation measures presented in Section 2.3, there are additional measures used to evaluate and compare the project alternatives: land use, constructability, community impacts, natural resources, environmental quality, and additional considerations. Each of these five additional measures is discussed below.

Land Use: Alternatives and station locations were evaluated to determine whether surrounding land use supports transit use; whether the alternatives and station locations are consistent with existing adopted local, regional, and state plans; and whether they are supported by existing or future growth areas (Table 2-2).

Table 2-2: Land Use Evaluation Measures

Land Use		
Measurement	Method	Source
Development potential for Transit-Oriented Development (TOD)	Identify existing and proposed land uses within ½-mile of station locations. Identify if there are TOD districts, TOD overlay zones, mixed-use designations, or if local jurisdiction have identified station areas for redevelopment or economic development.	Regional and local planning documents, and land use analysis and input from local planning agencies
Consistency with other planning efforts and adopted plans	Qualitative – general analysis of applicable planning and policy documents.	General and comprehensive plans, existing and future land use maps

Constructability: Alternatives were evaluated to determine whether construction of the alternative is feasible in terms of complexity of construction and right-of-way constraints (Table 2-3).

Table 2-3: Constructability Evaluation Measures

Constructability and Right-of-Way		
Measurement	Method	Source
Constructability	Extent of feasible access to alignment for construction within existing transportation right-of-way.	Conceptual design plans and maps
Disruption to existing railroads	Right-of-way constraints and impacts on existing railroads.	Conceptual design plans and maps
Disruption to and relocation of utilities	Number of potential utility diversions.	Conceptual design plans and maps

Community Impact: Alternatives and station locations were evaluated for their ability to minimize disruption to neighborhoods and communities. They were measured by the extent to which they minimize right-of-way acquisitions, minimize division of established communities, and minimize conflicts with community resources (Table 2-4).

Table 2-4: Community Evaluation Measures

Disruption to Neighborhoods and Communities		
Measurement	Method	Source
Displacements	If possible, number of properties by land use type that would be displaced, or acres of land within the right-of-way/station footprint, by type of land use: single-family, multifamily, retail/commercial, industrial, etc.	Identified by comparing the alignment conceptual design drawings with aerial photographs, zoning maps, and general plan maps
Property with access affected	Identify potential locations along the alignments or at station locations where access would be affected.	Estimated using conceptual design plans and aerial photographs
Local traffic effects around stations	Identify potential locations where increases in traffic congestion or level of service (LOS) are expected to occur.	Existing traffic LOS from local jurisdictions
Highway grade separations and road closures	Identify potential locations of grade separations and road closures.	Conceptual design plans and aerial photographs

Natural Resources: Alternatives were evaluated for their ability to minimize impacts on natural environmental resources (Table 2-5).

Table 2-5: Natural Resources Evaluation Measures

Natural Resources		
Measurement	Method	Source
Waterways and wetlands and natural preserves or biologically sensitive habitat areas affected	Identify new bridge crossings required; rough estimate of acres of wetlands, linear feet of waterways; acres and species of threatened and endangered habitat affected; acres of natural areas/critical habitat affected.	Measured off conceptual design plans and GIS layers
Cultural resources	Identify locations of properties listed in the National Register of Historic Places or California Historical Resources Information System. For archaeological resources, identify areas of high, moderate, or low sensitivity based on previous studies conducted in the study area.	Conceptual design plans and GIS layers; existing Section 4(f) studies and cultural resource records search and surveys
Parklands	Identify number and acres of parks that could be directly or indirectly affected. This would also include major trails that would be crossed.	Conceptual design plans and GIS layers
Agricultural lands	Identify acres of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance within preliminary limits of disturbance.	Conceptual design plans and GIS layers

Environmental Quality: Alternatives were evaluated for their ability to enhance environmental quality. They were measured by the extent to which they minimize impacts on the natural environment (Table 2-6).

Table 2-6: Environmental Quality Evaluation Measures

Environmental Quality		
Measurement	Method	Source
Noise and vibration effects on sensitive receivers	Identify types of land use activities that would be affected by HST pass-by noise and ground vibrations.	Results of FRA screening-level assessment; inventory of potential receivers from site survey and aerial maps
Change in visual/scenic resources	Identify number of local and scenic corridors crossed and scenic/visual resources that would be affected by HST elevated structures in scenic areas and shadows on sensitive resources (parks). Identify locations where residential development is in close proximity to elevated HST structures.	Result of general assessment and survey of alignment corridors and planning documents
Maximize avoidance of areas with geological and soils constraints	Identify number of crossings of known seismic faults, acres of encroachment into areas with highly erodible soils, acres of encroachment into areas with high landslide susceptibility.	U.S. Geological Survey maps and available GIS data
Maximize avoidance of areas with potential hazardous materials	Hazardous materials/waste constraints.	Data from previous records search conducted for other projects within study area

3.0 PROJECT ALTERNATIVES

The evaluation of alternatives is based on the key differentiators among alternatives. The evaluation of potential stations is also based on key differentiators among station options within certain geographic areas. This section describes the No Project Alternative, the initial range of alternatives reviewed, and the alternatives and stations carried forward for detailed evaluation in the Preliminary Alternatives Analysis.

3.1 No Project Alternative

The No Project Alternative represents the existing conditions of the LA-SD Section study area as it exists today and as it would exist in the future without the HST Project. The No Project Alternative is based on future development projects and improvements to the intercity transportation system that are programmed and funded for construction. It is the basis for comparison of the HST build alternatives and satisfies the statutory requirements under CEQA and NEPA for an alternative that does not include any new action or project beyond what is already committed. The No Project Alternative represents the state's transportation system (highway, air, and conventional rail) as it is currently and as it would be after implementation of programs or projects that are currently projected in the Regional Transportation Plans (RTPs) that have identified funds for implementation and that are expected to be in place by 2035. The No Project Alternative addresses the geographic area that serves the major destination markets for intercity travel and that would be served by the proposed LA-SD Section alternatives. This area extends generally from the LAUS east to Ontario International Airport and San Bernardino and south through Riverside and San Diego Counties.

The No Project Alternative includes programs and projects identified from the following sources:

- Southern California Association of Governments (SCAG) *Regional Transportation Plan, May 2008* (amendments in 2009 and 2010).
- San Diego Association of Governments (SANDAG) *2030 Regional Transportation Plan "Pathways to the Future," November 2007*.
- SANDAG *2050 Regional Transportation Plan*, under development.
- Metropolitan Transportation Authority (METRO) *2009 Long Range Transportation Plan, October 2009*.
- San Bernardino Association of Governments (SANBAG) *Measure 1 Strategic Plan, April 2009*.
- Riverside County Transportation Commission (RCTC) *Measure A Plan and Transportation Improvement Program, 2009*.

The No Project Alternative includes highway, aviation, and conventional rail elements. Programs and projects that are funded for future construction are summarized in Table 3-1 and shown on maps included in Appendix E. Figure 3-1 displays the existing transportation network in the LA-SD Section in the three Caltrans Districts (7, 8, and 11) that cover the section.

Figure 3-1: 2010 Existing Transportation Network in the LA-SD Section



Table 3-1: Key Planned and Programmed Transportation Improvements in the LA-SD Section

PLANNED PROJECT NAME	TYPE OF PROJECT				
	Highway Improvements	Interchange	Grade Separation	Rail Corridor	Transit Station
Los Angeles County					
I-10, I-605 to I-710 HOT Demonstration Lanes	x				
Metro Gold Line East Transit Corridor, SR 60, Atlantic Blvd to Peck Rd				x	
I-10/I-605 Direct HOV Connector		x			
I-10/I-605 Interchange Improvements		x			
SR 60, I-605 to SR 57 HOV Lanes	x				
I-10, I-605 to Citrus Avenue HOV Lanes	x				
SR 71/Mission Blvd Grade Separation			x		
SR 71, I-10 to SR 60, one HOV lane and one mixed flow lane	x				
San Bernardino County					
N. Vineyard Ave, Holt Blvd to Airport Dr. Grade Separation, and Railroad Bridge Flyover	x		x		
Milliken Ave, UPRR to Mission Blvd Grade Separation			x		
I-10, Ford Ave to Haven Ave, two HOV lanes, work on overcrossing and undercrossing	x				
Cherry Ave/I-10 Interchange Improvements		x			
Citrus Ave/I-10 Interchange Improvements		x			
I-10/Cedar Ave Interchange Improvements		x			
Metro Rail Gold Line Extension from Montclair to Ontario Airport				x	
Metrolink Double Track, Cherry Ave to N. Rancho Ave				x	
Railroad Grade Separation from South of I-10 in City of Colton			x		
I-10/S. Riverside Ave Interchange Improvements		x			
I-10/Pepper Ave Interchange Improvements		x			
San Bernardino Transit Center, E Street/Rialto Ave					x
Redlands Rail Alignment, San Bernardino Metrolink Station to University of Redlands				x	
SR 60/I-215 Reconstruct Interchange and Ramps		x			
Mid-County Pkwy/I-215 Interchange (Location TBD)		x			
I-215, I-10 to I-210, one HOV lane	x				
I-10/Mt. Vernon Ave/Washington St Interchange Improvements		x			
HOV Lanes, I-215, Orange Show Rd to SR 60/SR 91/I-215 (also located in Riverside County)	x				
Riverside County					
HOV Lanes, I-215, Orange Show Rd to SR 60/SR 91/I-215 (also located in San Bernardino County)	x				
I-215/I-60/I-91 Freeway Direct Connectors		x			
Metrolink Extension, Perris Valley Line				x	
Corona Multi Modal Transit Center, SR 91/Main Ave					x
I-215, SR 60 to Nuevo Rd, one HOV lane and two express lanes	x				
I-215/Van Buren Blvd Interchange Improvements		x			
SR 91, Pierce St to Orange City Line, four HOV lanes and two general-purpose lanes	x				

PLANNED PROJECT NAME	TYPE OF PROJECT				
	Highway Improvements	Interchange	Grade Separation	Rail Corridor	Transit Station
I-15/Cajalco Rd Interchange Improvements		x			
I-15, SR 60 to SR 74, four tolled express lanes and two general-purpose lanes	x				
I-215/Placentia Ave, new interchange		x			
I-215/D Street Interchange Improvements		x			
I-215/Redlands Ave Interchange Improvements		x			
I-215/SR 74 Interchange Improvements		x			
Lake Elsinore Multimodal Transit Center, I-15/Malaga Rd					x
I-215, Nuevo Rd to I-15, one general-purpose lane	x				
Wildomar Metrolink Station, I-15/Baxter Rd					x
I-15/Clinton Keith Rd Interchange Improvements		x			
Murrieta Village Walk Metrolink Station, I-15/Kalmia St					x
I-15/Los Alamos Rd Overcrossing Improvements		x			
Adams RTA Bus Station					x
Temecula/Murrieta Transit Center, I-15/Sanborn Ave					x
SR 79/I-15 Interchange Improvements		x			
Keller Rd/I-215 New Interchange		x			
I-215/Clinton Keith Rd Interchange Improvements		x			
French Valley Pkwy/I-15 Interchange Improvements		x			
I-15/SR 79 Interchange Improvements		x			
San Diego County					
SR 76 Improvements, widening, two additional lanes	x				
I-15, from SR 78 to Riverside County, additional freeway and toll lanes	x				
I-15/Deer Springs Rd Interchange		x			
Sprinter Rail, SR 78, I-15 to I-5 double tracking and other improvements				x	
I-15/SR 78 HOV/BRT Connectors		x			
I-5/SR 78 HOV/BRT Connectors		x			
I-15, Centre City Parkway to SR 78, four managed lanes	x				
SR 56, I-5 to I-15, two lanes	x				
I-5/SR 56 freeway connectors		x			
I-5/I-805 HOV/BRT Connectors		x			
I-5, I-805 to SR 56, four managed lanes	x				
I-805, SR 52 to I-5, four managed lanes	x				
I-805/Carroll Canyon Rd Direct Access Ramp to HOV lanes		x			
I-805, SR 52 to I-5, additional freeway and managed lanes	x				
I-805, I-8 to SR 52, HOV Lanes	x				
SR 163/Clairemont Mesa Blvd		x			
SR 163/Friars Rd		x			
Mid-Coast Light Rail, along I-5, I-8 to Westfield-UTC				x	
I-5/I-8 Interchange Improvements		x			
Lindbergh Intermodal Transit Center, I-5/Washington St					x

3.1.1 Highway Infrastructure

The No Project Alternative highway system that currently serves the intercity travel market in the area that would be served by the LA-SD Section alternatives includes the existing highway routes identified in Table 3-2.

Table 3-2: Existing California Intercity Highway System

Interstate Highways	State Routes
Interstate 5	State Route 52
Interstate 8	State Route 56
Interstate 10	State Route 57
Interstate 15	State Route 60
Interstate 215	State Route 71
Interstate 605	State Route 74
Interstate 805	State Route 79
	State Route 91
	State Route 163

The No Project Alternative includes this existing highway system, as well as funded and programmed improvements on the intercity highway network based on financially constrained RTPs developed by regional transportation planning agencies. Intercity highway improvements included as part of the No Project Alternative include infrastructure projects, as well as Intelligent Transportation System (ITS) and other potential system improvements programmed to be in operation by 2035. The improvements consist primarily of individual interchange improvements and roadway widening projects on limited segments of the highway network.

3.1.2 Aviation Element

The existing air transportation system evaluated under the No Project Alternative consists of two airports that provide commercial service in the area proposed to be served by the LA-SD Section. The airports do not necessarily provide commercial service between the same intercity markets as the proposed HST System. The two primary commercial airports serving the study area are the Ontario International Airport (ONT) and San Diego International Airport, Lindbergh Field (SDIA). In addition, there are two military airfields located along the proposed HST alternatives, which include March Air Reserve Base (ARB) in Riverside County and Marine Corps Air Station (MCAS) Miramar in San Diego County. The former Norton Airbase in San Bernardino County, which has been converted to the San Bernardino International Airport (SBIA), is also located in the proximity of the alternatives.

Ten passenger airlines that fly to cities across the United States currently provide commercial service at ONT. In 2009, ONT commercial service included over 220 daily operations with nearly 4.9 million annual passengers (MAP).¹ As the population continues to grow in southern California, ONT would expand to provide commercial service to an ultimate capacity of 30 MAP in 2030.²

Commercial services at SDIA are currently provided by 23 passenger airlines that fly nonstop to destinations in the United States, Canada, and Mexico. SDIA is the busiest single runway airport in the United States, and as operations continue to increase, the airfield will become increasingly congested. Annual aircraft operations are projected to increase from nearly 230,000 in 2007 to approximately 300,000 between 2021 and 2030. Annual passengers are projected to grow from 17 MAP in 2009 to between 27 to 33 MAP in 2030.

The *San Diego International Airport Master Plan* (San Diego County Regional Airport Authority, May 2008) documents the San Diego County Regional Airport Authority's (SDCRAA) planning process for the 661 acres that comprise SDIA. This document provides guidance for development of the airport to meet continued passenger, cargo, and operations growth at SDIA. Key elements of the *San Diego International Airport Master Plan* include expanding Terminal 2; the

¹ Airport Council International, 2009 Final Airport Statistics.

² SCAG Regional Transportation Plan, Aviation Element, 2004.

construction of new and replacement aircraft parking; a new apron and aircraft taxiway; new parking and vehicle circulation; relocation and reconfiguration of Pacific Highway; construction of a new access road to the North Area facilities from the Sassafras Street/Pacific Highway intersection; demolition of the existing general aviation facilities and construction of new general aviation facilities including access, terminal/hangars, and apron; reconstruction of Taxiway C; and construction of new apron hold pads and a new taxiway east of Taxiway D.

MCAS Miramar provides facilities for operations and training support to the Marines and other tenant organizations. MCAS Miramar also supports force deployment and training requirements. March ARB provides host base support for the Air Force Reserve and its operational flying missions, as well as other tenant units, including the California Air National Guard. The March ARB Joint Powers Board anticipates additional air cargo and commercial air carrier operations in the future³.

3.1.3 Conventional Passenger Rail Element

Existing intercity passenger rail service in California is provided by Amtrak on four principal corridors covering more than 1,300 linear miles and spanning the entire state. The existing intercity passenger rail network between Los Angeles and San Diego is a segment of the Pacific Surfliner Route, which extends from San Luis Obispo in the north and connects south to Santa Barbara into Los Angeles and ultimately San Diego (LOSSAN). The Pacific Surfliner Route includes 11 daily roundtrips between Los Angeles and San Diego. The intercity route carried approximately 805,000 riders in 2007 with an on-time performance of 74.8% for the Los Angeles to San Diego segment. The scheduled running time between Los Angeles and San Diego averages 2 hours and 44 minutes, at an average speed of 47 mph. The maximum speed on the route is 79 mph (California Department of Transportation 2008).

The *California State Rail Plan 2007/8–2017/18* (California Department of Transportation 2008) envisions an increase in service to 13 daily roundtrips by 2018, carrying 4,061,000 annual riders, with a 90% on-time performance goal and seeks to reduce the travel time between Los Angeles and San Diego to less than 2 hours and 30 minutes. In addition, the plan calls for implementation of an express service between Los Angeles and San Diego.

The LOSSAN rail corridor currently shares track with the BNSF freight line. There are existing Amtrak stations in Los Angeles, Orange, and San Diego Counties. This corridor serves a portion of the same intercity markets as the proposed LA-SD Section HST alternatives.

Intercity passenger rail system improvements identified in the State Transportation Improvement Plan (STIP) and the Caltrans California State Rail Plan for implementation before 2020 are included in the No Project Alternative and identified in Table 3-3. To increase levels of passenger service, the improvements consist of additional track capacity, new rolling stock, grade-crossing improvements, track and signal improvements, and expanded or upgraded passenger stations.

Table 3-3: Programmed Improvements in 2008 California State Rail Plan

Project Title	Project Description
LA Union Station	Station tracks and platforms
LA Storage Track	Permits efficient use of equipment
Double Track – San Diego County	Various locations – decreases running times
LA Union Station Run Through Tracks	Reduces running times and terminal congestion
Equipment	Three train sets
San Diego Layover Facility	Permits better use of equipment
Source: California State Rail Plan 2007/8 – 2017/18, California Department of Transportation (2008).	

Metrolink is the commuter rail service provided by the Southern California Regional Rail Authority (SCRRA). SCRRA is a Joint Powers Authority formed by Los Angeles, Ventura, Orange, San Bernardino, and Riverside Counties in 1991 to

³ March ARB General Plan, March ARB Joint Powers Board, 1999.

create and operate a regional passenger rail network within its five-county area. Within the LOSSAN Corridor, Metrolink operates between LAUS and Oceanside Transit Center. Metrolink headways on this corridor vary between 30 minutes and three hours, depending on the direction of operation, time of day, and the segment of the corridor in which the train is operating. Metrolink operates Monday through Friday, with no weekend service. Recent forecast data provided by Metrolink for the year 2020 project up to 54 trains operating between LAUS and Irvine, up to 22 trains between Irvine and San Juan Capistrano, and 17 trains south of San Juan Capistrano to Oceanside.

Metrolink also operates the Riverside Line on weekdays, connecting LAUS with Downtown Riverside with stops in Montebello/Commerce, Industry, Downtown Pomona, Ontario, and Pedley. Metrolink operates the San Bernardino Line, which connects LAUS and Downtown San Bernardino daily with an additional stop into Downtown Riverside at select times during the weekend. The San Bernardino Line also makes stop at the California State University, Los Angeles campus; El Monte; Baldwin Park; Covina; Pomona; Claremont; Montclair; Upland; Rancho Cucamonga; Fontana; and Rialto.

The North County Transit District (NCTD) operates two commuter rail services in San Diego County: the Coaster and the Sprinter. The Coaster provides service between Oceanside and San Diego, at headways similar to those of Metrolink. The Coaster operates 22 trains a day between the Oceanside Transit Center and Santa Fe Depot in Downtown San Diego. Currently, four trains operate each Saturday, with headways of approximately two to three hours in each direction. By 2020 planned operation levels of Coaster commuter trains are expected to increase to 54 trains each weekday between Oceanside and San Diego, with an expected increase in weekend service as well. The Sprinter provides daily service between Oceanside and Escondido. The Sprinter runs every 30 minutes in each direction during weekdays, with a maximum capacity of 226 passengers. Weekend service runs hourly in each direction, with a capacity of more than 450 passengers.

The San Diego Trolley is owned and operated by the San Diego Metropolitan Transit System (MTS) and provides service daily from across central San Diego County south to the United States/Mexico border. Daily ridership in 2007 averaged between 100,000 to 110,000 and increased to 150,000 to 225,000 on special-event days, for an approximate 2007 total of 35.1 million riders. The three Trolley routes providing service in San Diego include (1) Blue Line between the Old Town Transit Center to the United States/International border with Mexico, (2) Orange Line between Downtown San Diego and Gillespie Field, and (3) Green Line between the Old Town Transit Center and the Santee Transit Center. Recently, SANDAG, the regional planning agency for San Diego, has approved the Mid-Coast Trolley Extension to service the University Towne Centre and University of California, San Diego from the Old Town Transit Center. The Mid-Coast Trolley Extension would primarily follow the existing LOSSAN corridor.

3.2 Program-Level Alternatives

As previously noted, several planning and feasibility studies have been completed in the LA-SD Section study area. A Statewide Program EIR/EIS has been completed under the direction of the Authority. The result of this effort is summarized in Sections 3.2.1 through 3.2.3.

3.2.1 Statewide Program EIR/EIS Alternatives

The Statewide Program EIR/EIS for the California HST System was completed in November 2005. The Authority and FRA selected the technology for the HST vehicles and identified potential route and station location options through the program environmental analysis. For a more detailed examination of these issues, refer to the *Final Program EIR/EIS for the Proposed California HST System*.

The Statewide Program EIR/EIS examined three major alternatives for the statewide transportation network:

- **No Project Alternative:** The state's transportation network as it is today, along with funded projects included in regional transportation plans.
- **Modal Alternative:** Enhancements to the state's transportation network using existing modes and technologies (mainly expanded airports and highways).
- **HST Alternative:** A new HST system to connect California's major urban centers.

The HST Alternative was the selected system alternative in the Statewide Program EIR/EIS. The No Project Alternative was not able to provide the needed level of intercity mobility in the future, while the Modal Alternative provided reduced mobility compared to the HST Alternative. In addition, the Modal Alternative would have a higher cost and more substantial environmental impacts than the HST Alternative. The Authority certified the Final Statewide Program EIR/EIS in November 2005. As co-lead agency for the Statewide Program EIR/EIS, FRA signed a Record of Decision in November 2005 identifying the preferred HST Alternative for the statewide HST.

3.2.2 Los Angeles to San Diego (via the Inland Empire) Section Routing and Station Alternatives from 2005 Statewide Program EIR/EIS

The following alignment and station options were carried forward for further consideration in the Statewide Program EIS/EIR for the LA-SD Section:

- The selected program-level alternative follows the UPRR Riverside and Colton lines from LAUS to approximately Riverside and south to the March ARB.
- From the March ARB, the selected corridor is in the I-215 transportation corridor south into San Diego County.
- At Carroll Canyon, the alignment turns west, extends to the I-5/LOSSAN corridor, and then continues south to Downtown San Diego.
- In addition to the LAUS, seven HST stations were selected as preferred station locations at Industry, Ontario Airport, UC Riverside, Murrieta, Escondido, University City, and Downtown San Diego at the Santa Fe Depot. This corridor is approximately 170 miles in length.

This alternative served as the "starting point" for developing additional potential alignments and stations as part of this Alternatives Analysis Report for the LA-SD Section of the Statewide HST System. The Statewide Program EIS/EIR preferred alignment is shown in Figure 3-2. Further detail of the Preferred Alternative selected for the LA-SD Section is included in 2005 Statewide Program EIR/EIS and is hereby incorporated by reference.

3.3 Initial Development of Alternatives

The initial development of the LA-SD Section alternatives and station locations began with the 2005 Statewide Program EIR/EIS alignment and stations, as described in Section 3.2.2. This starting point was expanded based on the ongoing input received from the public and numerous other stakeholders, which began in 2007. Section 3.3.1 provides a detailed discussion of the agency coordination and public outreach that has been vital in the development of the LA-SD Section alternatives. This stakeholder input process was formalized in 2008 with the formation of the Southern California Inland Corridor Group (So Cal ICG) via a Memorandum of Understanding with the Authority. The So Cal ICG, which is exclusively focused upon the LA-SD Section, was created to serve as the official local conduit through which the Authority interacts and plans the HST System in this part of its state network. The So Cal ICG is composed of the regional transportation planning agencies in the four counties (Los Angeles, San Bernardino, Riverside, and San Diego), the three Caltrans Districts (7, 8, and 11), and the respective Metropolitan Planning Organizations. In addition to and as a subset of the So Cal ICG, Technical Working Groups (TWGs) in each of the four counties were established to include technical staff representatives from affected and adjacent local cities and jurisdictions.

Together, the So Cal ICG and TWGs reviewed and expanded upon the initial 2005 program alternatives. After this review period, the Authority presented its refined set of LA-SD Section alternatives and stations to the public in 2009 during public scoping. Simultaneously, federal, state, county, and local officials were briefed on the development of alternatives in each of the counties. In 2010, following the public scoping period, the So Cal ICG, TWGs, and elected officials continued their review and shaping of alternatives and stations. These groups significantly helped shape and develop the LA-SD Section alternatives as currently presented in this report. The approach, timing, and outcomes of these stakeholder and public consultations are further discussed in Section 3.3.1; Appendix D identifies the members of each group, as well as the meetings that have been held to date.

The corridor is divided into three subsections (as shown in Figure 1-2)—Los Angeles to Ontario International Airport Subsection (S1), Ontario International Airport to Murrieta/Temecula Subsection (S2), Murrieta/Temecula to San Diego Subsection (S3). These three subsections and their potential station alternatives are summarized below.

- **Los Angeles to Ontario International Airport Subsection (S1)**

The Los Angeles to Ontario International Airport (ONT) subsection begins where the track and ROW for this section branches from the LA to Anaheim Section. Several connections to the Los Angeles to Anaheim Section are identified in this report and will be evaluated further with a preferred connection determined as the study progresses. From the connection to LAUS, the Los Angeles to ONT subsection crosses the Los Angeles River and then extends east a distance of approximately 15 miles to I-605. Alignment alternatives evaluated generally follow existing transportation corridors, including I-10, SR 60, and two options along and adjacent to the UPRR corridor (i.e., River, Los Angeles, and Alhambra Subdivisions). These corridors are urban and suburban in nature with a mixture of adjacent land uses, ranging from industrial, commercial, residential, institutional, and recreational parklands.

From I-605, the alignment alternatives extend east approximately 22 miles, following existing transportation corridors as much as possible, with all alternatives converging on a station located directly adjacent to the Ontario International Airport. Three potential alignment alternatives (Metro/Metrolink, I-10, and UPRR) have been identified and evaluated, with results presented in this report. The Metro/Metrolink alignment extends northeasterly from east of the I-605/I-10 interchange for a distance of 26 miles and then turns southeast and connects to the Ontario International Airport Station. The I-10 alternative generally follows I-10 from the I-605/I-10 interchange and extends east approximately 11 miles to SR 71 and then follows SR 71 for 0.5 mile to Holt Avenue/Boulevard, before extending east 11 miles to the Ontario International Airport Station. The third alternative alignment follows the UPRR from I-605 east for approximately 27 miles to the Ontario International Airport Station.

The overall distance of this subsection is approximately 42 miles. The corridors are all generally developed as urban and suburban and composed of industrial, commercial, and residential uses.

- **Ontario International Airport to Murrieta/Temecula Subsection (S2)**

The Ontario International Airport to Murrieta/Temecula subsection extends east from the Ontario International Airport Station to San Bernardino and north Riverside County and then turns south and extends to the I-215 and I-15 confluence in the Murrieta/Temecula area. Alignment alternatives generally follow existing transportation corridors from the Ontario International Airport Station east. On the north, an alignment evaluated generally follows the SANBAG Metrolink corridor to Downtown San Bernardino and then swings south connecting to I-215 in the area of Riverside. A second alternative generally follows I-10 and turns south connecting to I-215 in the area of Riverside. The third alternative generally follows the UPRR ROW and also turns south to follow the I-215 near Riverside. A fourth alternative alignment extends east from the Ontario International Airport Station and then turns south to generally follow I-15.

All alternatives in this subsection converge at the I-215/I-15 interchange in the Murrieta/Temecula area. The overall distance of alternatives included in this subsection ranges from approximately 50 miles to 65 miles. In San Bernardino and north Riverside Counties, the development is urban and suburban with land uses that are industrial, commercial, and residential. In the southern portion of this subsection, open space and suburban development are the more dominant land use types.

- **Murrieta/Temecula to San Diego Subsection (S3)**

The Murrieta/Temecula to San Diego subsection extends south from Murrieta/Temecula to San Diego, generally following the I-15 transportation corridor in southern Riverside and northern San Diego Counties. The adjacent development varies from urban to suburban to rural and open space. In central San Diego County, there are multiple alignment options that bring the HST westerly toward the LOSSAN transportation corridor, as well as two options that continue along I-15 south to I-8 in Mission Valley. Alignment alternatives that have been evaluated and could provide a link between I-15 and the LOSSAN corridor in San Diego County include SR 56, Carroll Canyon, Rose Canyon, Miramar Road, and SR 163. The I-15 options include terminating the Section in the Qualcomm Stadium area or extending towards Downtown San Diego via I-8 and the LOSSAN corridor.

Overall, this subsection has an approximate distance ranging from 44 miles to 62 miles. As the subsection approaches the San Diego area, the adjacent land uses generally become more developed and urbanized.

- **Station Alternatives**

There are station alternatives identified and evaluated within each subsection and divided into several groups. Amongst each of these groups of station alternatives, it is intended and likely that a single station would be selected; however, more than one station alternative may be carried forward from this preliminary alternatives analysis phase for further study. The groupings of two or more station alternatives are as follows:

- San Gabriel Valley Station Alternative
- San Bernardino Station Alternative
- North Riverside County Station Alternative
- Murrieta Station Alternative
- Escondido Station Alternative
- University City Station Alternative
- San Diego Station Alternative

The location where a single station alternative exists is shown below:

- Ontario International Airport Station Alternative

The LAUS Alternative is included in the Los Angeles to Anaheim (LA-Anaheim) Section and is part of that section's alternative analysis and environmental documentation. This station alternative is noted by reference only in this document. The LA-SD Section and connection to LAUS is being developed in collaboration with the LA-Anaheim and Los Angeles to Palmdale Sections. For further information regarding the development and evaluation of LAUS alternative configurations and access, refer to the LA-Anaheim Preliminary and Supplemental Alternatives Analysis publications at <http://www.cahighspeedrail.ca.gov>.

The full range of alternatives and stations brought forward in the public process were reviewed and expanded by the Authority Board of Directors to determine those to be carried forward into the preliminary alternative analysis process. Alternatives eliminated from further consideration are described in Section 3.3.2. Alignments carried forward for further evaluation in the preliminary alternatives analysis are described in Sections 3.3.3, 3.3.4, and 3.3.5. Station alternatives are described in Section 3.3.6. Chapter 4 of this document provides an evaluation of the alignment and station alternatives.

3.3.1 Agency Coordination and Public Outreach

The LA-SD Section has benefited significantly from input received from the Authority's partnering agencies, cities, and the public since the original development of an LA-SD Section in the 2005 Statewide Program EIR/EIS. Pre-scoping, input was received through a range of methods and then formally as part of the public scoping process. In pre-scoping, the alternatives and stations, as described in this section, underwent considerable regional and local review through the So Cal ICG and the TWGs, as well as through individual cities and elected offices. Due to the jurisdictions of the So Cal ICG partners, input was managed on a county-by-county basis through the TWGs (as opposed to sub-section by sub-section), and then, further, through individual cities and participants within each county. Agency coordination and public outreach as it relates to the development of the LA-SD Section alternatives and stations is described in this section, first from an institutional perspective and, second, from a geographic perspective. This includes all pre-scoping, formal public scoping, and post-scoping input.

Institutional

Early and continuing coordination with the public, stakeholders, public agencies and the institutional organizations in the LA-SD Section has been an essential part of the overall alternatives analysis process; Figure 3-3 illustrates the institutional arrangements that are helping guide the process for the LA-SD Section. Agency consultation and public participation activities have been accomplished using a variety of formal and informal methods. These include the development and involvement of the So Cal ICG and the development of and meetings with four county-based TWGs comprising representatives from the various public agencies in communities interested and/or potentially affected in each county. Formal public input was received during the public scoping process. In addition, meetings and discussions with key elected officials, community leaders, various stakeholders, and local/resource agency staff have been held, along with informal presentations to community organizations and groups. Environmental consultations, including regulatory resource agency meetings, were both formal (scoping) and informal. Each of these institutional efforts for agency and public involvement is described below. In support of all consultations, the LA-SD Section project team prepared and distributed PowerPoint presentations, project display boards (reduced size for distribution), public notices, and fact sheets for the LA-SD Section, as well as the statewide HST System, with project information and updates on the ongoing studies.

Southern California Inland Corridor Group

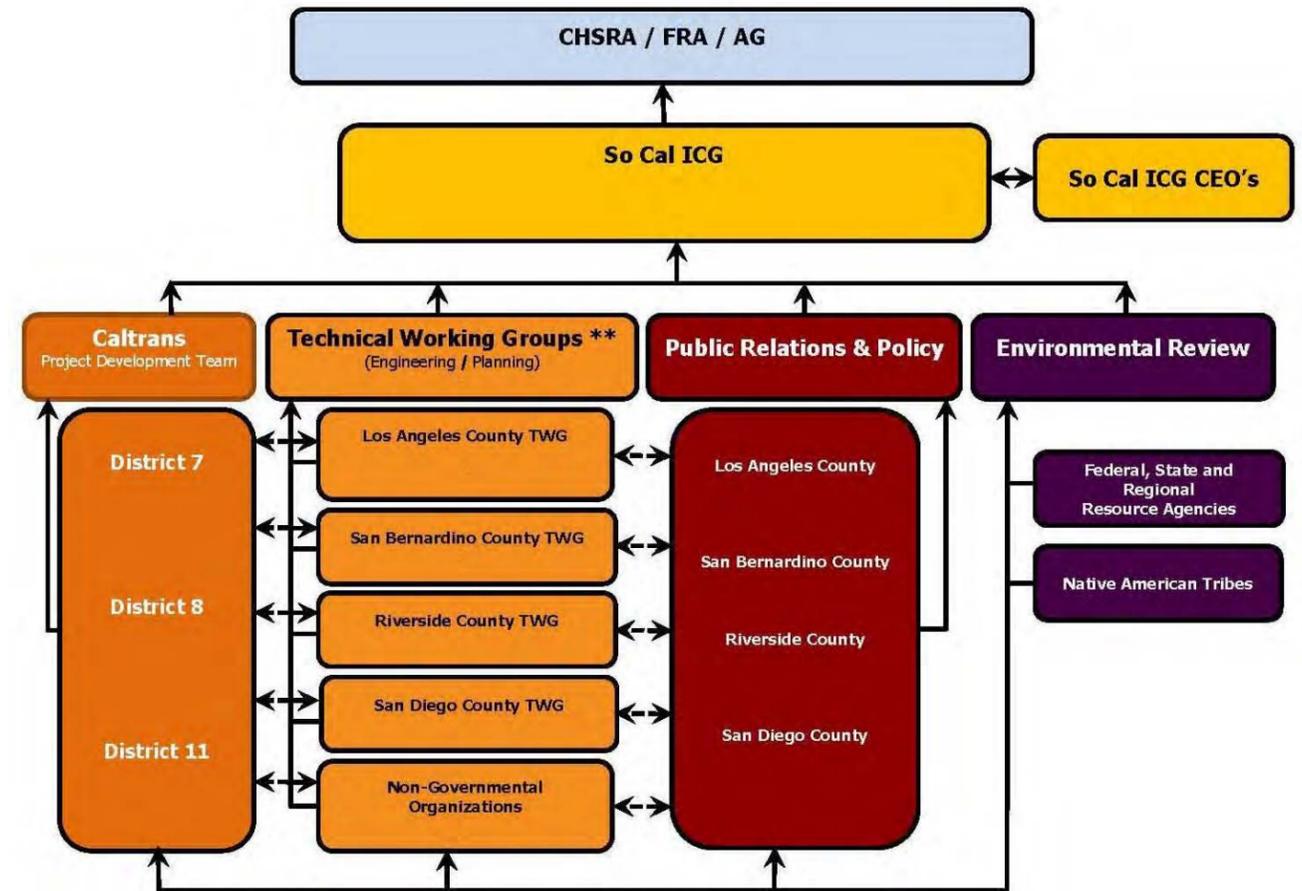
Recognizing the importance of the local, regional, state and federal agencies' involvement in the HST planning process, the Authority has executed various Memoranda of Understanding (MOUs) to work in partnership on the HST Project development. MOUs have been executed between the Authority and the following regional agencies in the LA-SD Section:

- Southern California Association of Governments (SCAG)
- Los Angeles County Metropolitan Transportation Authority (Metro)
- San Bernardino Associated Governments (SANBAG)
- Riverside County Transportation Commission (RCTC)
- San Diego Association of Governments (SANDAG)
- San Diego County Regional Airport Authority (SDCRAA)
- Statewide Caltrans (Districts 7, 8, and 11)

Since 2008, these agencies have been formally working cooperatively with the Authority as the So Cal ICG. Informal meetings also occurred prior to 2008. The So Cal ICG has generally met on a monthly basis at alternating locations in the four-County LA-SD corridor and has played an important role in the development of potential HST alternatives and stations for the LA-SD Section within the framework of policies of each organization. The So Cal ICG partners'

role has consisted of providing specific review and input reflecting their organizations' perspective of the alternatives and stations presented in this Alternatives Analysis Report. Twenty formal So Cal ICG meetings have been held, beginning in January 2009; Appendix D presents the meeting dates of the So Cal ICG to date. The So Cal ICG will continue to function in an important oversight and regional policy role as the HST process moves forward, including the attention and involvement of each agency's executive director, board of directors, and designated planning staff.

Figure 3-3 Southern California Institutional Framework for the LA-SD Section



A sub-group of the So Cal ICG is the So Cal ICG Public Relations and Policy Group (PR&P Group); this group comprises public information/relations staff from each of the So Cal ICG agencies. Since October 2009, this group has also met regularly, generally on a monthly basis. The purpose of this sub-group is to ensure that the communications and outreach staff of the partnering agencies are kept apprised of the status of the LA-SD Section commensurate with their technical counterparts that serve on the So Cal ICG. In addition, the PR&P Group provides specific input and guidance on the preferred local approach to public outreach, including consultations with various cities, elected officials and the public.

Technical Working Groups

Since 2008, TWGs have been in place to support the LA-SD Section. The four TWGs—one per county—are composed of city and public agency staff from potentially affected and/or interested cities along the alternative alignments. The TWGs provide local perspective and input based on their knowledge and awareness of the alignments and station options on an ongoing basis. In turn, TWG representatives provide internal briefings and updates to their elected bodies (city councils, board of supervisors, etc.), providing another link to the elected leadership in the LA-SD Section.

Prior to and after the passage of Proposition 1A in November 2008, the Authority also needed to spend time explaining the HST System and clarifying its purpose, technology, funding plan, and schedule to local cities, jurisdictions, and agencies in the LA-SD Section. The TWG framework helped spread the word and enhance participation.

Five rounds (four meetings per round, one per county) of TWG meetings have been held since 2008. The TWG meetings supported the Authority's conceptual engineering, feasibility analysis and, ultimately, the evaluation of the alternatives and stations for this Preliminary Alternatives Analysis report. The timing and specific agendas per round of TWG meetings were as follows:

- | | |
|-----------------------------------|---|
| • Round 1: November/December 2008 | What is HST; purpose of TWGs; review 2005 Program Alignment |
| • Round 2: February 2009 | What is HST; ongoing review of alternatives |
| • Round 3: July/August 2009 | Review of alternatives, stations and design issues (corridor-level) |
| • Round 4: December 2009 | Debrief from public scoping meetings (corridor-level) |
| • Round 5: May 2010 | Present and review revised alternatives (plans and profiles) |

Appendix D presents the dates and the county where each of these meetings occurred.

Additional TWG City/Agency Consultations

Input from city engineers, public works directors, and transit planners through the TWGs helped shape the ultimate set of HST alignment and station alternatives for the LA-SD Section presented here. Following Round 5, considerable interest was expressed in further reviewing the plans and profiles specifically for each city beyond the group setting of the TWG. As a result, the Authority arranged 129 one-on-one meetings with all cities and agencies that expressed a need to address specific issues and concerns within their jurisdictions. From July through November 2010, these extended consultations deepened the understanding of the alternatives and station locations, but, equally important, helped the Authority to strengthen plans to reach a higher threshold of community acceptance wherever possible. Each city and county perspective is unique, and each city and county has and will continue to express its interests and concerns as it relates to any alternative or station that is carried forward.

Public Scoping Meetings and Public Outreach

A comprehensive public involvement program was developed to seek input and to advise the public and agencies of the project developments during the environmental review process. As discussed above, pre-scoping activities were initiated in 2008, including the development of project information materials, early engagement with affected and adjacent cities/counties, and various forms of communication with interested parties and media contacts. Formal public scoping was completed for the LA-SD Section from September through November 2009. On September 17, 2009, a Notice of Preparation (NOP) announcing the preparation of the EIR was distributed to the State Clearinghouse; elected officials (federal, regional, and local); federal, state, and local agencies, including the planning and community development directors in each county; and the interested public. A Notice of Intent (NOI) announcing the preparation of the EIS was published in the Federal Register on September 24, 2009.

During the 2-month formal public scoping period, twelve public scoping meetings and two resource agency scoping meetings were held. Appendix D identifies when and where these scoping meetings occurred for the LA-SD Section. The public scoping process resulted in approximately 812 attendees to the open houses and approximately 1,243 written or recorded oral comments submitted by individuals and organizations; 62 agencies also provided comments.

At the public scoping meetings, the Authority presented the full range of alternatives and station locations as developed up until that point. This included the full range of alternatives as developed in consultation with the So Cal ICG, TWGs, and affected cities. The public scoping meetings were held in an "open house" format and provided complete information about the statewide HST program as well as specific information on the LA-SD Section, as prepared to date. Key issues raised in the public scoping process included the following:

- Comments regarding the location of alignments and stations as presented in the open houses
- Suggestions/recommendations for alternative alignments and stations other than/in addition to those presented
- Comments related to the HST impact on the natural environment
- Comments related to the HST impact on the built environment

- Comments noting the benefits of the HST
- Comments related to HST costs, financing, and fast-tracking of implementation
- Comments related to the integration of HST with existing and planned regional and local transportation/transit efforts
- Comments specific to various alignments or stations identified in the presentation materials

Specifically from the public scoping process, several alternatives and stations were added for evaluation, including one alternative and station in Los Angeles County (I-10 corridor west of I-605) and several alternatives and one station in San Diego County (SR 56, SR 163, and I-15 to I-8).

A full discussion of the Public Scoping process and a summary of the comments and issues received can be found in the *(Draft) Scoping Report Los Angeles to San Diego via the Inland Empire*, April 2010 at http://www.cahighspeedrail.ca.gov/images/chr/20100414084023_Draft%20LA-SD_ScopingReport.pdf

In addition to the formal public scoping meetings, the Authority has taken a proactive approach to working with local stakeholders in order to review, refine, and properly plan alternatives and stations at the local level. The institutional framework has allowed for and encouraged ongoing public involvement through meetings with stakeholders, regulatory resource agencies, community groups, and other interested parties. In fact, as a result of stakeholder consultations, the Authority dedicated specific attention Los Angeles and San Diego Counties, where new alternatives were added since the public scoping process. These specific communities along the new alternatives were not targeted for the public scoping meetings in 2009, as these alternatives did not yet exist for the Authority. In order to provide adequate public awareness of these alternatives, the Authority consulted with the local jurisdictions for a preference on methods to build public awareness of these new alternatives. In Los Angeles County, the San Gabriel Valley Council of Governments requested individual community forums by city to allow for public awareness of the I-10 alternatives (west of I-605). Upon consultation with local cities, three additional community open house meetings and several City Council presentations were held along the new I-10 alternative to communicate the new alternative and receive public input. More than 500 residents and interested parties attended. In San Diego County, the City of San Diego's existing community planning councils were used to communicate the new San Diego alternatives along SR 56, SR 163, and I-15/I-8.

Since the commencement of the public scoping period on September 17, 2009, and leading up to the development of this Preliminary Alternatives Analysis Report on November 19, 2010, over 260 stakeholder meetings were held, including the additional community open house meetings and community planning council meetings. Appendix D documents the full set of stakeholder meetings that were held. These consultations have been instrumental in helping to shape the alternatives and stations as presented herein, as well as further educating and informing stakeholders and the public on the process and schedule of the LA-SD Section.

Regulatory Resource Agency Meetings

Two meetings were held with the regulatory resource agencies to provide information about the initial set of alternative alignments developed from scoping comments, discuss results of the preliminary studies and review the current alignments alternatives and stations under consideration. The USACE, U.S. Fish and Wildlife Service (USFWS), EPA, State Water Resource Control Board (SWRCB), California Department of Fish and Game (CDFG), local water boards, and the Coastal Commission attended the meeting. The meetings were held in San Diego on February 1, 2010, and June 22, 2010. The agencies provided input on the alternatives development and evaluation process as it relates to natural resource impacts. Correspondence from the respective regulatory resource agencies is included in Appendix D.

Geographical

From a geographical perspective, input was received from agencies, cities, and the public on a county-by-county basis. The jurisdictions of the So Cal ICG agencies are organized by county boundaries. As such, the TWGs matched this geographic division in order to maximize participation, existing connections between jurisdictions, and geographic accessibility to the project. Within each county, subregional planning is handled differently. The Authority took the lead of So Cal ICG partners and local jurisdictions to develop, review, and refine HST alternatives that were filtered locally through each county, as described below.

Los Angeles County

The LA-SD Section has a series of alternatives and stations that traverse Los Angeles County. Generally speaking, the alternatives and stations commence at LAUS and are located to the north in the San Gabriel Valley and to the south in the section of Los Angeles County known as the Gateway Cities. For these two subregional areas, Councils of Governments (COGs) exist that coordinate subregional involvement and issues across city boundaries for maximum benefit to the subregion. These include the San Gabriel Valley Council of Governments (SGVCOG) and the Gateway Cities Council of Governments (GCCOG). The Authority engaged both COGs in order to review and refine alternatives at a local level. In both cases, each COG formed a working group to engage the Authority officially with the development, refinement, and understanding of alternatives and station locations on an ongoing basis. The City of Los Angeles also formed a TWG to review all three HST sections that connect to LAUS.

In 2010, the LA-SD Section also participated in collaboration with the LA-Anaheim Section in the GCCOG TWG sessions. These sessions were specific to the alternatives in the LA-SD Section that overlapped into the GCCOG jurisdiction, which included the UPRR ROW alternative and the UPRR-Adjacent alternative.

San Bernardino County

A significant HST connection is Ontario International Airport in San Bernardino County, which is owned by Los Angeles World Airports (LAWA, City of Los Angeles). In addition, while not included in the original 2005 Statewide Program EIR/EIS alignment, an alternative to Downtown San Bernardino evolved out of the So Cal ICG and TWG framework. The cities of Montclair, Ontario, Rancho Cucamonga, Fontana, Colton, Rialto, and San Bernardino have all actively participated in the TWGs and consulted with the Authority individually. In addition, San Bernardino and its sister county, Riverside County, form the Inland Empire. Together, the two counties have proactively engaged the Authority to ensure connections to their growing communities in the Inland Empire.

Riverside County

Riverside County is home to two major transportation corridors connecting the Inland Empire from points south and north. Under the guidance of Riverside County Transportation Commission (RCTC), the I-215 and I-15 corridors have each evolved to become formidable potential alignment alternatives for an HST system. Formally, RCTC has created the HST Rail Ad Hoc Committee to provide guidance and leadership on the county's interests and concerns as it relates to these two HST corridors.

San Diego County

As the southernmost point in the Statewide HST System, San Diego County features several alternatives that present possible routes for HST. At the same time, this growing and developing county has a wide range of existing and proposed transit systems. Locally, the challenge is to maximize its resources and potential connections to the state. As such, San Diego County agencies have come together to form an advisory committee that meets with the Authority on a monthly basis to closely review and provide guidance on plans.

Coordination and Outreach Next Steps

Following the presentation of the Preliminary Alternatives Analysis report in March 2011, the Authority will share all findings with the public and solicit additional input. For the LA-SD Section, approximately 24 public open house meetings are planned across the four counties. The open house meetings will be held within proximity of all alignment and station alternatives that are recommended to be carried forward. The Authority will engage with the public to receive another round of input on the latest evaluation of these alternatives. All input will be documented and used in the ongoing refinement of the alternatives.

In addition, leading up to and following the presentation of the Preliminary Alternatives Analysis Report to the Authority Board in March 2011, established agency and public outreach efforts will continue as follows:

- The So Cal ICG continues to meet on a monthly basis to review materials regarding the Preliminary Alternatives Analysis, to understand the direction of the Authority Board, and to continue to provide guidance.
- Additional follow-up meetings with specific corridor and station cities, as needed, including the SGVCOG TWG Working Group, the RCTC HST Rail Ad Hoc Committee, and the San Diego County Agencies Group.

- Continued presentations and meetings with stakeholders along the corridor regarding the recommendations in the Preliminary Alternatives Analysis and the direction of the Authority Board.
- Ongoing discussions and meetings with regulatory resource agencies.

Agency and public comments received during the development of this Preliminary Alternatives Analysis Report will be evaluated and recommended changes to the alignment alternatives will be documented in the Supplemental Alternatives Analysis Report and presented to the Authority Board at a later date to be determined.

3.3.2 Initial Review of Alternatives

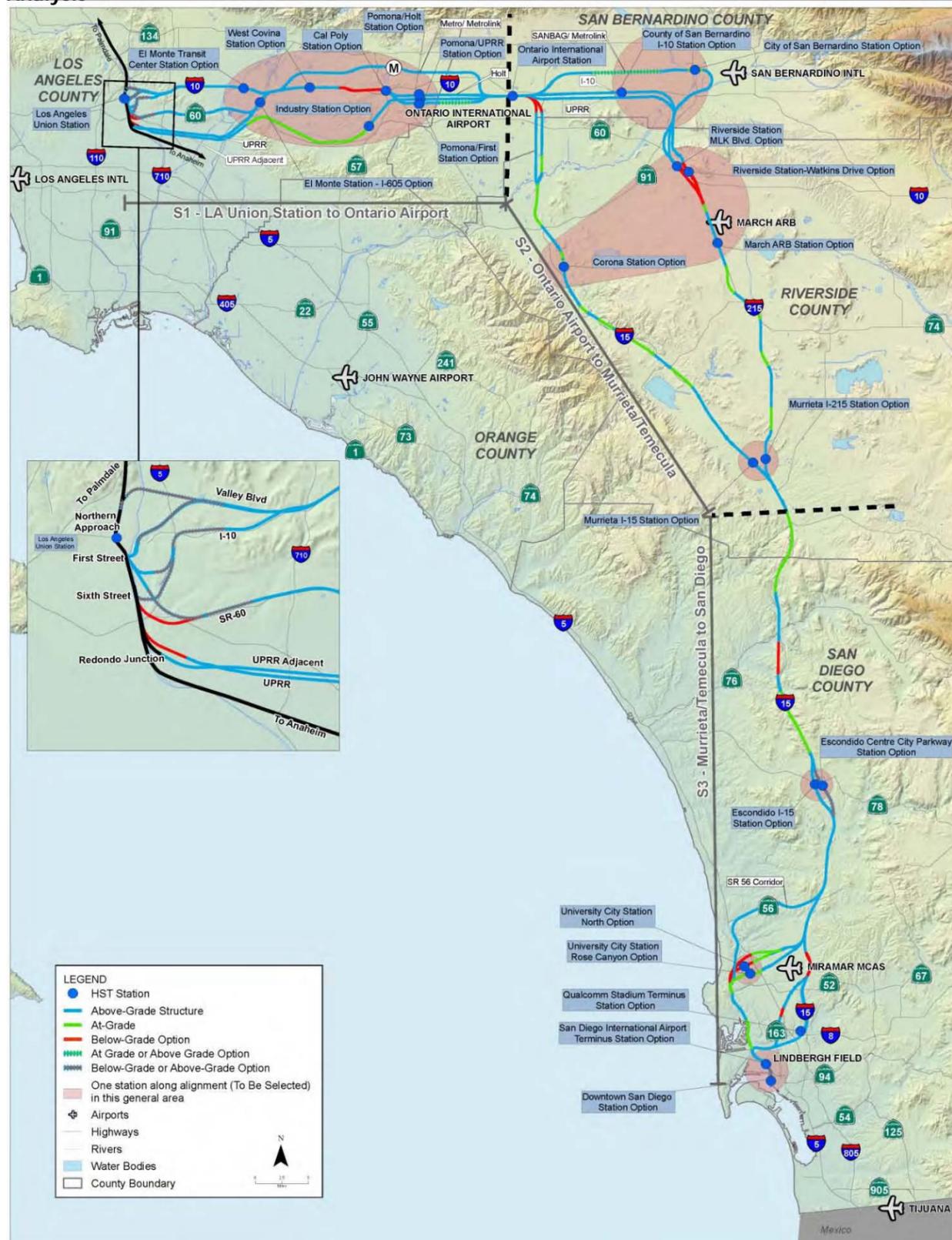
As noted above, alternatives were expanded from the 2005 Statewide Program EIR/EIS Preferred Alignment by the TWGs in each of the four counties, resource agencies, stakeholders, and the public through the public scoping process. Figure 3-4 illustrates the alternatives selected by the Authority Board to carry forward for more assessment in the Preliminary Alternatives Analysis.

Based on the scoping comments, a number of alternatives and station options were identified for consideration and potential further study. Of these, several were not carried forward per the Authority Board's direction, as follows:

- The LOSSAN/Coastal Corridor from Los Angeles to San Diego was raised in scoping. This alternative was evaluated in the 2005 Statewide Program EIR/EIS and rejected from further consideration due to the anticipated severe environmental and physical impacts required for implementation.
- In Riverside County, SR 60 as an alignment alternative east of Ontario was assessed and the need for a "very long tunnel" crossing under Riverside and daylighting in the Moreno Valley was deemed impracticable and infeasible and was rejected from further consideration.
- In Riverside County, an alignment on the east side of the City of Corona was deemed impracticable and infeasible due to the mining activities under way and planned in this alignment; therefore, it was rejected from further consideration.
- In San Diego County, an alignment following SR 163 from Mission Valley (I-8) to Downtown San Diego under Balboa Park. This alternative had been previously assessed in the 2005 Statewide Program EIR/EIS and was not carried forward; it was rejected from further consideration.
- In San Diego County, an alignment following I-15 from Mission Valley (I-8) south to SR 94 and then following SR 94 to Downtown San Diego. This alignment was assessed and because of the topography, parkland, ROW needs, geometric constraints, and additional travel times due to slow operating speeds was deemed impracticable and infeasible and was rejected from further consideration.
- In San Diego County, an alignment that followed I-15 to National City did not meet the purpose and need of the HST and was rejected from further consideration.
- In San Diego County, an alignment that followed I-15 to I-805 to the US/Mexico Border and Rodriguez International Airport did not meet the purpose and need of the HST and was rejected from further consideration.
- In San Diego County, an alternative that would extend the HST from a potential Downtown San Diego terminus at the Santa Fe Depot to the 32nd Street Naval Base and to Chula Vista did not meet the purpose and need of the HST and was rejected from further consideration.
- Various stations identified with the alignments were also rejected, including Sorrento Valley, Kearney Mesa and Solano Beach.

The remaining alternatives were reviewed and assessed by the project team and then shared with the So Cal ICG to obtain input. Following So Cal ICG input, the alternatives were reviewed with the Authority and the FRA in January 2010 and then presented to the Authority Board in early February 2010 for review and direction. These alternatives and station options are described in the following sections of Chapter 3 and evaluated in Chapter 4 to recommend which will be carried forward to the EIR/EIS.

Figure 3-4 Alternative Alignments and Station Options Carried Forward Into Preliminary Alternatives Analysis



3.3.3 Los Angeles Union Station to Ontario International Airport Subsection (S1)

The Los Angeles to Ontario International Airport subsection extends from LAUS to ONT; a distance of approximately 35 to 38 miles depending upon the alignment alternative. This subsection is divided into two segments at Interstate 605 (I-605); Figure 3-5 details the segment between LAUS and I-605 and Figure 3-16 details the segment from I-605 to ONT. The alignment alternatives within Subsection 1 are listed in the text box below. Detailed descriptions follow.

LAUS to I-605 via I-10 (Alternative S1-A1)

The S1-A1 alignment has nine LAUS approach alignment alternatives:

- S1-A1.1 I-10 via North above-grade approach
- S1-A1.2.1 I-10 via North below-grade approach
- S1-A1.2.2 I-10 via North below-grade approach
- S1-A1.3 I-10 via Mission Road above-grade approach
- S1-A1.4 I-10 via Mission Road below-grade approach
- S1-A1.5 I-10 via I-5/First Street above-grade approach
- S1-A1.6 I-10 via I-5/First Street below-grade approach
- S1-A1.7 I-10 via I-5/Sixth Street above-grade approach
- S1-A1.8 I-10 via I-5/Sixth Street below-grade approach

LAUS to I-605 via SR 60 (Alternative S1-A2)

The S1-A2 alignment has three LAUS approach alignment alternatives:

- S1-A2.1 SR 60 via First Street above-grade approach
- S1-A2.2 SR 60 via First Street below-grade approach
- S1-A2.3 SR 60 via Sixth Street below-grade approach

LAUS to East of I-605 via UPRR (Alternative S1-A3)

The S1-A3 alignment has two LAUS approach alignment alternatives:

- S1-A3.1 LAUS to east of I-605 via Sixth Street below-grade approach
- S1-A3.2 LAUS to east of I-605 via UPRR via Redondo Junction above-grade approach

LAUS to I-605 via UPRR Adjacent (Alternative S1-A4)

The S1-A4 alignment has two LAUS approach alignment alternatives:

- S1-A4.1 LAUS to I-605 via Sixth Street below-grade approach
- S1-A4.2 LAUS to I-605 via UPRR via Redondo Junction above-grade approach

I-605/I-10 to Ontario International Airport

I-605/I-10 to Ontario International Airport via Metrolink (Alternative S1-A5)

I-605/I-10 to Ontario International Airport via I-10/Holt or I-10/First/State (Alternative S1-A6)

The S1-A6 alignment has two approach alignment alternatives to the Ontario Int. Airport:

- S1-A6.1 – Holt Boulevard above-grade approach
- S1-A6.2 – First Street/State Street above-grade or at-grade approach

UPRR from East of I-605 to Ontario International Airport (Alternative S1-A7)

The station alternatives within Subsection 1 are listed below.

San Gabriel Valley Station Alternative

The selected alternative will have a single San Gabriel Valley Station Alternative ultimately selected from the following candidates:

- El Monte Transit Center Station Option
- El Monte Station – I-605 Option
- West Covina Station Option
- Cal Poly Station Option
- Industry Station Option
- Pomona/Holt Station Option
- Pomona/UPRR Station Option
- Pomona/First Station Option

Ontario International Airport Station

This station will be located in the City of Ontario at the Ontario International Airport.

Alignment Alternatives

All four of the LA-SD Section alternatives heading east from LAUS pass through three of Los Angeles' major community areas: 1) Boyle Heights and El Sereno (City of Los Angeles), 2) the San Gabriel Valley, affecting 18 out of its 31 incorporated cities, and 3) the Gateway Cities southeast Los Angeles County. Local cities and COGs in these areas have been actively involved in the development and refinement of these alternatives. For this part of the LA-SD Section, the Authority faces particular challenges selecting an alignment out of Downtown Los Angeles, over or under the Los Angeles River and into Boyle Heights or El Sereno. The Authority has also learned that Environmental Justice issues exist within these dense suburban corridors. In addition to above-grade options in this area, the elected leadership of this community has strongly urged below-grade options in Boyle Heights, El Sereno, and points farther east.

The SGVCOG has vocalized strong opposition to any alternative that exists outside the I-10 freeway ROW. SR 60 has other major transportation projects also being considered, including the Metro Gold Line Eastside Project, Caltrans' carpool lanes, and potentially a goods movement corridor. The San Gabriel Valley Foothill cities to the east have expressed concerns regarding the Metrolink alternative that traverses a dense residential area in an already-narrow rail corridor. The GCCOG and its member cities show no support for the alternatives to the south along the UPRR ROW. Both COGs and many of their member cities have engaged the Authority in the development of these alternatives and have provided input verbally and/or in writing (Appendix D).

Los Angeles Union Station Connection Options

The LA-SD Section of the HST System needs to connect to LAUS to interface with the LA to Anaheim and LA to Palmdale sections of the HST Project. The Alternatives Analysis Report for the LA to Anaheim Section has identified two basic LAUS station concepts for further evaluation—an elevated or "same-level" station at LAUS, in addition to either a consolidated shared-track or dedicated track alternative.

There are multiple connection alternatives for each of the four primary alignment alternatives being studied between LAUS and I-605: I-10, SR 60, UPRR, and UPRR Adjacent. The connection points are described below under each primary alignment alternative. These connection points each present challenges. In Chapter 3, the basic connections are described. The challenges are described in Chapter 4, where all of the alternatives are evaluated for recommendation to be carried forward or withdrawn from further consideration.

The connection point to LAUS for the LA-SD Section is a key element of this alternatives analysis. Extensive coordination between the three HST sections has occurred and will continue to occur in order to develop the optimum solution for this area. To the maximum extent possible, the alternatives for the LA-SD Section have been developed to allow potential connections to as many points as possible with the LA to Anaheim Section alternatives. The final connection point will be determined based on analysis within the LA to Anaheim Section, with input from the LA-SD Section. Table 3-4 provides a comparison of how each of the LAUS connecting points described below relates to the alignments alternative being considered for the LA to Anaheim Section of the HST System. Contingent on the LA to Anaheim selected alternative, some LA-SD Subsection 1 LAUS approach alignment alternatives may be eliminated from further consideration.

Another aspect of the connection to LAUS is the vertical configuration of the LA-SD alternatives in the area between the connection point to the sections the north and south (i.e., LA to Palmdale and LA to Anaheim) and the establishment of the alignment on the corresponding transportation corridor (I-10, SR 60, UPRR, or UPRR Adjacent). Many of these are shown as potentially above- or below-grade, while some can be only below-grade or only above-grade. The maximum flexibility has been developed to provide the greatest number of options for evaluation. However, it should be noted that concerns have been expressed at numerous stakeholder/public meetings about being above-grade through the communities immediately east of the Los Angeles River, specifically Boyle Heights and El Sereno. These communities have been heavily affected by freeway construction in the past and are very sensitive to the potential of an HST alignment that might further divide their neighborhoods. Concerns have also been expressed about a new bridge crossing over the Los Angeles River.

The western end of this subsection includes the connection into Los Angeles, which includes various approaches that interface with the other two Southern California sections (i.e., LA to Anaheim and LA to Palmdale) and coincide with the alignment alternatives heading east to Ontario Airport. These approaches are shown in Figure 3-9. Four

connection points (North, First Street, Sixth Street, and Redondo Junction) have been established to connect the LA-SD Section with the other two Southern California sections, and these have been connected to each of the four LA-SD Subsection 1 corridors (I-10, SR 60, UPRR, and UPRR Adjacent) where feasible. The maximum number of connections options has been developed to maintain flexibility for the otherwise independent decisions of the preferred alternatives for each of the three Southern California sections. The various options for connecting the LA-SD Section Alternatives into LAUS are described below.

San Gabriel Valley Cities

The San Gabriel Valley, home to more than 2 million people, is a geographic area approximately 374 square miles and serves as the eastern gateway to Los Angeles and Southern California. As such, the San Gabriel Valley presents a diverse set of jurisdictions, including unincorporated communities, each with a unique history and a complex range of interrelated and independent planning issues, which the Authority must address in order to attain a locally acceptable HST alternative in this area.

The SGVCOG is the subregional organization that brings together all 31 cities and unincorporated communities to address issues of regional concern. The HST program certainly qualifies for this type of regional coordination. To this end, since 2009, the SGVCOG has received briefings from the Authority on the status of the development of alternatives that traverse the San Gabriel Valley. In fall of 2009, the Authority hosted 3 out of its 12 public scoping meetings in the San Gabriel Valley (Monterey Park, El Monte, and Pomona), where all alternatives developed up to this point were presented. It is important to note that the I-10 Alternative west of I-605 did not exist at the time the Authority conducted its public scoping meetings. This segment of the I-10 Alternative was developed after scoping meetings were held in response to comments received during the scoping process and with which the Authority Board concurred at its February 2010 meeting.

In May 2010, the Authority held its fifth round of TWG meetings in the four counties, including the Los Angeles County TWG meeting. The Los Angeles TWG encompasses the San Gabriel Valley cities. As described in Section 3.3.1, Agency Coordination and Public Outreach, the input from the public and agencies has been a vital element in the development and refinement of alternatives that have fed into the preparation of this Alternatives Analysis Report. At this meeting, the draft conceptual engineering plans and profiles for each alternative were presented for the first time for city staff review and comment. This meeting included the I-10 Alternative west of I-605 that had been added by the Authority Board of Directors for consideration in February 2010 in response to comments from the scoping meetings and process. Following the May 2010 TWG meeting, the Authority extended its public outreach efforts in the San Gabriel Valley and throughout the rest of the LA-SD Section by providing briefings to local city councils and staff. Meetings were conducted with individual corridor cities to review more specifically the potential plans for each alternative and to receive local input. In addition and at the specific request of the SGVCOG, the Authority held three community open house meetings to provide public review and understanding of the all the HST alternatives, including I-10 Alternative west of I-605, which was formally added to the list of alternatives in February 2010. More than 500 people attended and participated in these community meetings.

Due to the significance and importance of the HST program through the San Gabriel Valley, the SGVCOG chose to form an HST working group of its own for this subregion in order to provide focused input to the LA-SD Section team developing the alternatives. It will be through this group, as well as continued one-on-one consultations with each city, that the HST alternatives through the San Gabriel Valley will continue to be refined and discussed. As previously noted, the other subsections that comprise the 170-mile LA-SD Section have similar institutional structures where TWGs and individual corridor cities provide input to the Authority.

Gateway Cities

Comparable to SGVCOG, GCCOG is a subregional organization representing 27 cities in southeast Los Angeles with a combined population of 2 million people who live and work in diverse communities. GCCOG's involvement with the Authority began with the LA to Anaheim Section. Later, the LA-SD Section was added for its review and consideration.

Through its established TWG focused on the HST, the LA-SD Section was able to share project plans and receive feedback from member cities. The LA-SD Section alternatives that traverse the Gateway cities would appear to cause substantial impacts to highly dense residential communities and business properties. The GCCOG and its affected member cities have not shown support for the UPRR or UPRR Adjacent alternatives as presented here.

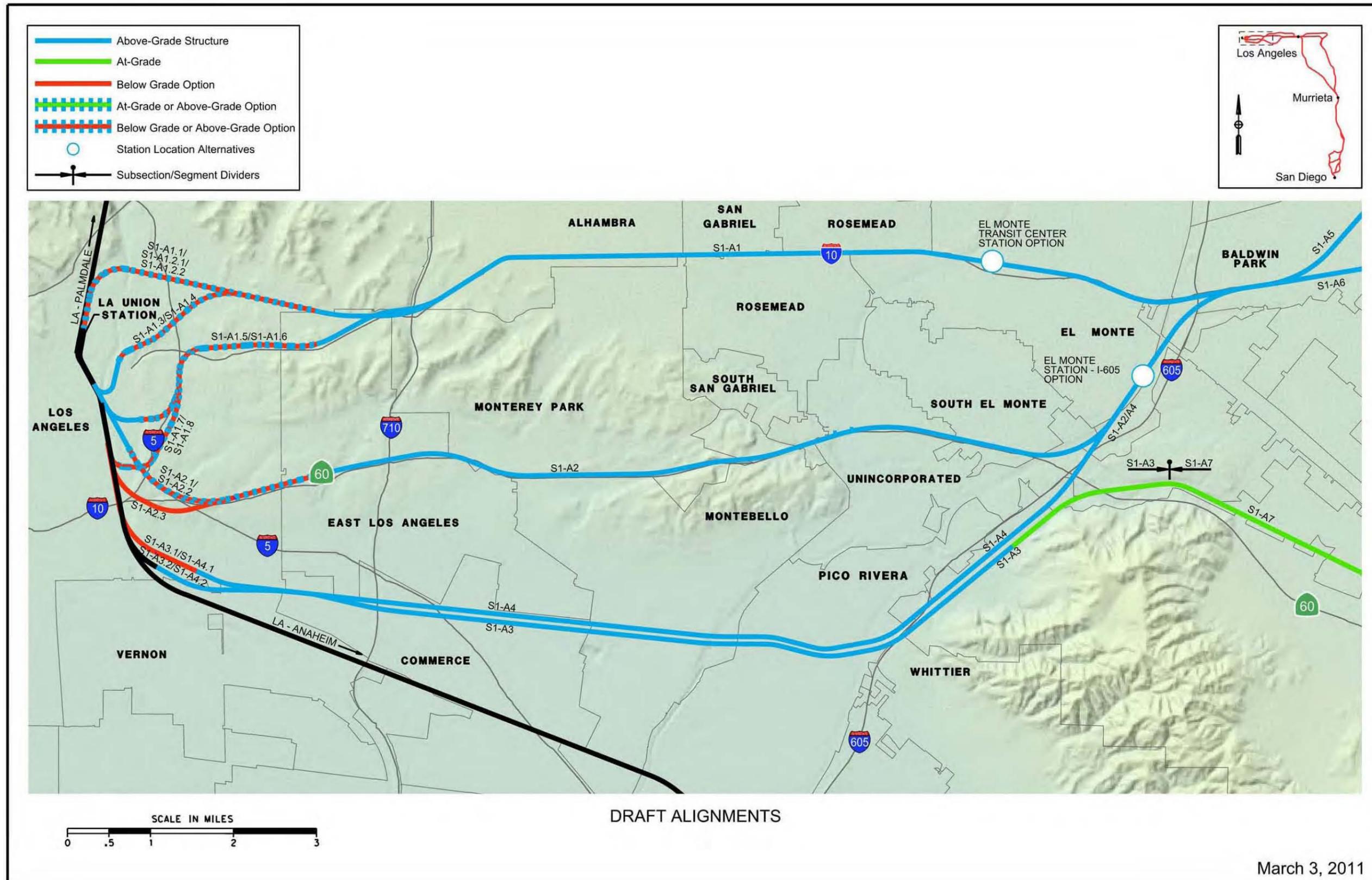
Table 3-4: LA-SD and LA to Anaheim Section Connection Compatibility

LA-SD Alternative	Description	Reference Drawings (LA-SD)	Reference Drawings (LA-Ana or LA-Palm)	LA-Ana Alternative ¹			LA-Palm Alternative			Station Configuration ¹		LA-SD Connection Point ²					
				Dedicated Track	Consolidated Shared-Track "Diagonal Over First St"	Consolidated Shared-Track "S-Curve Under First St" ¹	LT1	L1C	LT3	LAUS Elevated ¹	LAUS Same-Level	First Street Aerial	Sixth Street Underground	Sixth Street Aerial ²	Redondo Jct Aerial	North Approach Aerial	North Approach Underground
S1-A1.1	Aerial North Approach - Main St/Valley Blvd to I-10	TJ1001	LA-Palm: LAP-CB1610, LAP-CB1611	✓	✓	✓		✓		✓	✓					✓	✓
S1-A2.1	Underground North Approach - Valley Blvd to I-10	TJ1001A	LA-Palm: LAP-CB1110, LAP-CB1111		✓	✓	✓			✓	✓						✓
S1-A2.2	Underground North Approach - Valley Blvd to I-10	TJ1001B	LA-Palm: LAP-CB1310, LAP-CB1311	✓	✓	✓			✓	✓	✓						✓
S1-A1.3	Aerial First Street - Mission Blvd/Valley Blvd to I-10	TJ1002	LA-Ana: TJ1001-02, TJ1101-02, TJ1301-02	✓	✓	✓				✓	✓	✓					
S1-A1.4	Aerial First St to Underground - Mission Blvd/Valley Blvd to I-10	TJ1002A	LA-Ana: TJ1001-02, TJ1101-02, TJ1301-02	✓	✓	✓				✓	✓	✓					
S1-A1.5	Aerial First Street - 4TH St/I-5 to I-10	TJ1003, TJ1004	LA-Ana: TJ1001-02, TJ1101-02, TJ1301-02	✓	✓	✓				✓	✓	✓					
S1-A1.6	Aerial First St to Underground - 4TH St/I-5 to I-10	TJ1003A, TJ1004A	LA-Ana: TJ1001-02, TJ1101-02, TJ1301-02	✓	✓	✓				✓	✓	✓					
S1-A1.7 ^{1,2}	Aerial Sixth Street - 6TH St/I-5 to I-10	TJ1005	² LA-Ana: TJ1201-03, TJ1401-03		✓	✓ ¹				✓ ¹	✓			✓ ²			
S1-A1.8 ¹	Underground Sixth Street - 6TH St/I-5 to I-10	TJ1005A	LA-Ana: TJ1201-03, TJ1401-03, TJ1501-03		✓	✓ ¹				✓ ¹	✓		✓				
S1-A2.1	Aerial First Street - to SR-60	TJ1008	LA-Ana: TJ1001-02, TJ1101-02, TJ1301-02	✓	✓	✓				✓	✓	✓					
S1-A2.2	Aerial First St to Underground - to SR-60	TJ1008A	LA-Ana: TJ1001-02, TJ1101-02, TJ1301-02	✓	✓	✓				✓	✓	✓					
S1-A2.3 ¹	Underground Sixth Street - to SR-60	TJ1009	LA-Ana: TJ1201-03, TJ1401-03, TJ1501-03		✓	✓ ¹				✓ ¹	✓		✓				
S1-A3.1 ¹	Underground Sixth Street - to UPRR	TJ1020	LA-Ana: TJ1201-03, TJ1401-03, TJ1501-03		✓	✓ ¹				✓ ¹	✓		✓				
S1-A3.2	Aerial Redondo Jct - to UPRR	TJ10020A	LA-Ana: TA1001-08	✓						✓	✓				✓		
S1-A4.1 ¹	Underground Sixth St - to UPRR Adjacent	TJ1020	LA-Ana: TJ1201-03, TJ1401-03, TJ1501-03		✓	✓ ¹				✓ ¹	✓		✓				
S1-A4.2	Aerial Redondo Jct - to UPRR Adjacent	TJ10020A	LA-Ana: TA1001-08	✓						✓	✓				✓		

¹ "S-Curve Consolidated Shared-Track" alternative connection alternatives are precluded from an "LAUS Elevated" station configuration

² Adjustments to "Six Street Underground" connection from LA-Ana Section to LA-SD Section are required to develop "Six Street Aerial" connection

Figure 3-5: Alignment Alternatives and Station Alternatives – Subsection 1 (LAUS to I-605)



LAUS to I-605/I-10

The various alignment alternatives are described in detail below, beginning with the section from LAUS to I-605/I-10. These alternatives are shown on Figure 3-5.

S1-A1: LAUS to I-605 via I-10

The alignment alternative along I-10 from LAUS to the I-10/I-605 interchange is approximately 15 miles long. The alignment extends through the cities of Los Angeles, Alhambra, Monterey Park, San Gabriel, Rosemead, El Monte, and unincorporated parts of Los Angeles County. This section of I-10 contains an existing single railroad track within a 20-foot-wide median, as shown in Figure 3-6. This track is used by Metrolink for the San Bernardino to Los Angeles Metrolink line. The HST alignment from I-710 to approximately El Monte is shown above-grade in the median of I-10, as shown in Figure 3-7, occupying the space currently occupied by the existing single railroad track. A unique opportunity is presented by the existence of an operating rail corridor in the median of I-10. Initial brainstorming discussions have taken place with Metro, Metrolink, and the ACE Construction Authority on the implication of a temporary relocation of Metrolink operations in the median of I-10 to the UPRR Alhambra Subdivision during construction.

Figure 3-6: I-10/Metrolink Corridor in Alhambra

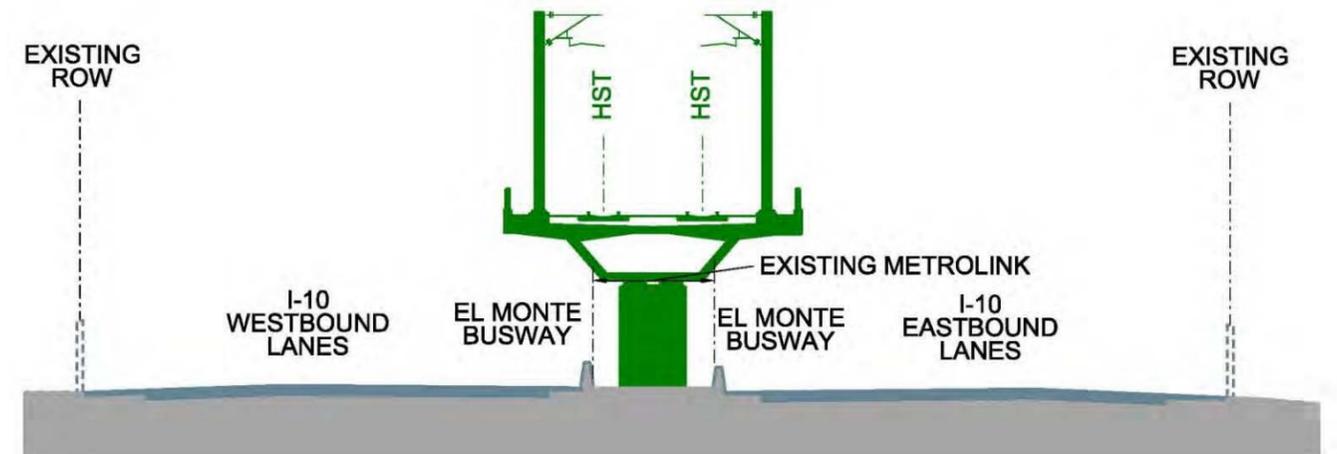


Within the El Monte community, the HST alternative departs from the I-10 ROW approximately 1 mile east of Rosemead Boulevard, and continuing east crosses over the Rio Hondo accessing the El Monte Transit Center. Traveling east, the alternative then crosses to the south side of I-10 in an above-grade profile.

While the alignment of I-10 is relatively straight through much of Alhambra, San Gabriel, and Rosemead, it has several curves through El Monte that would severely limit HST speed if the freeway were to be followed precisely. In addition, the City of El Monte desires a station option at the El Monte Transit Center, which is just north of I-10 and

west of Santa Anita Avenue. These factors require the HST alignment to come off of I-10 through El Monte to reach the desired station location near the El Monte Transit Center.

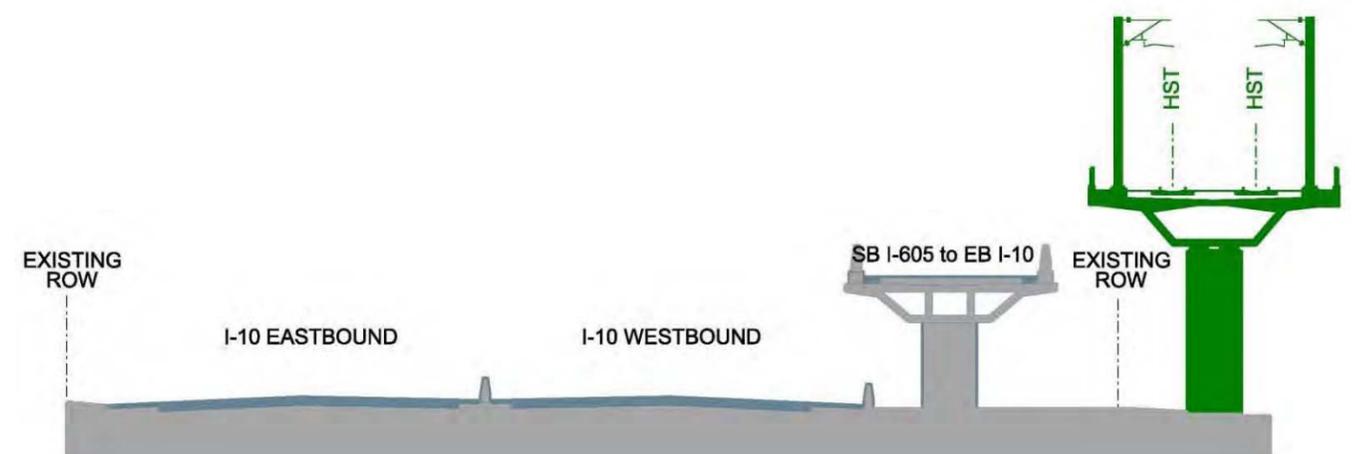
Figure 3-7 Conceptual Cross-Section I-10 from I-710 to El Monte



Initial design concepts utilized the 6,000-foot tangent alignment required for an HST station. This brought the alignment significantly off of I-10. The City of El Monte, through corridor city meetings, has suggested an alignment as close to the freeway as possible be explored. The current design concept maintains the standard tangent alignment through the station and brings the alignment as close to the freeway as possible. Further discussions with the City of El Monte are needed to work through the details and determine if there is a way to accommodate the station and minimize the impacts to residential properties.

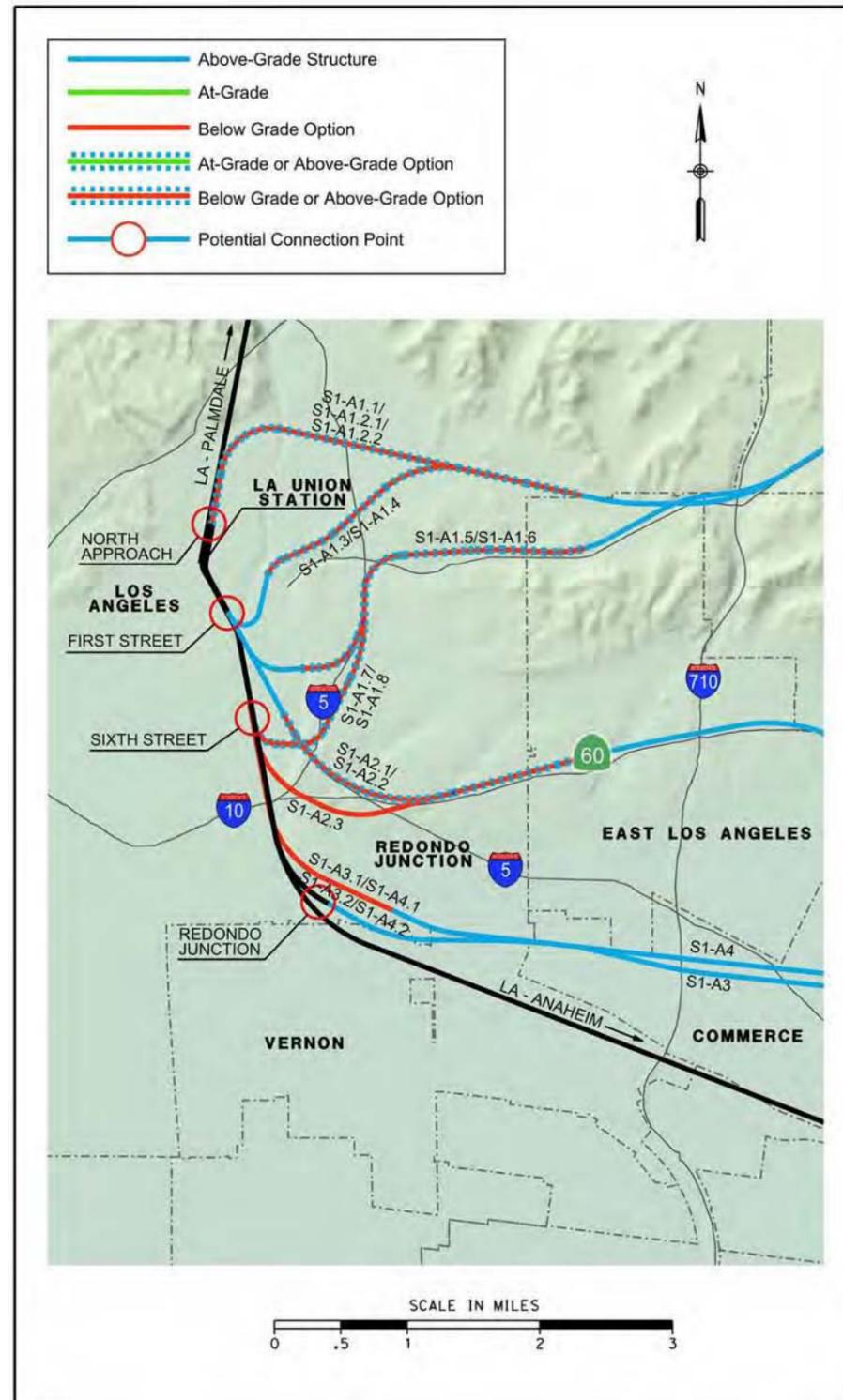
East of El Monte, the I-10 alignment remains above-grade passing over the I-10/I-605 interchange on the south side of I-10 to avoid an excessively high crossing of the proposed interchange improvements (e.g., a flyover connector for the southbound I-605 to eastbound I-10 movement). Figure 3-8 shows the HST alignment alternative along I-10 in relation to the proposed southbound I-605 to eastbound I-10 connector ramp at Baldwin Park.

Figure 3-8: I-10 from I-605 to Athol Street



The general location of three LAUS connection points (i.e., North Approach, First Street, and Sixth Street) applicable to the I-10 alignment alternative, and the nine alignment alternatives that connect to them, are shown in Figure 3-9 and described as follows:

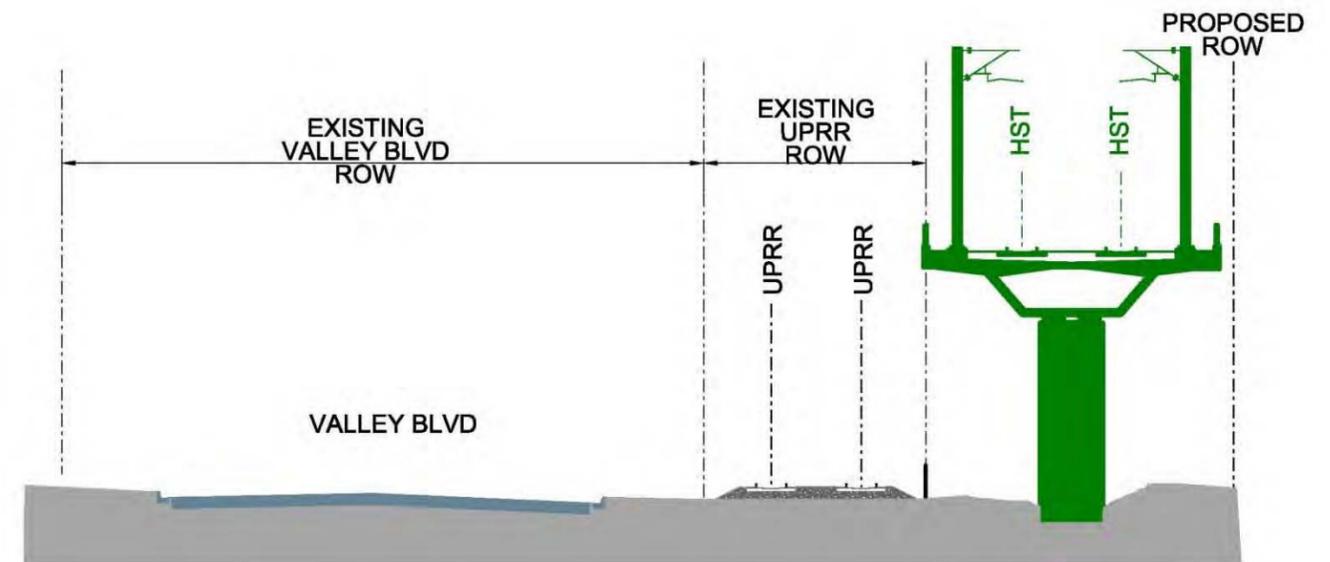
Figure 3-9: Los Angeles Union Station Approach Design Options



I-10 via North above-grade approach (S1-A1.1), I-10 via North below-grade approach (S1-A1.2.1), and I-10 via North below-grade approach (S1-A1.2.2) – This LAUS approach alignment alternative includes three sub-alternatives. A1.1 is an above-grade alternative that ties to Main Street north of LAUS and follows Main Street east for approximately 2 miles linking into Valley Boulevard and then I-10. The A1.1 provides a 2.2-mile, above-grade approach that aligns with the LA to Palmdale Section LAP1C Alternative. Sub-alternatives A1.2.1 and A1.2.2 provide below-grade alignments. These follow a broader curve to the north of LAUS turning east to also link to Valley Boulevard approximately 2 miles east of LAUS with a tunnel portal east of North Soto Street transitioning to an aerial configuration near I-710. The two below-grade approaches provide connections to the LA to Palmdale Section LAPT1 and LAPT3 alternatives currently under consideration. The A1.2.1 provides a 2.2-mile, below-grade approach which aligns with the LA to Palmdale Section LAPT1 Alternative, and the A1.2.2 provides a 1.9-mile, below-grade approach which aligns with the LA to Palmdale Section LAPT3 alternative.

Each of these alignments follows the south side of the existing UPRR ROW parallel to Valley Boulevard to the I-10 ROW, crossing over the I-710, and continuing in the median of I-10 east of I-710. Figure 3-10 shows the alignment configuration west of the I-710.

Figure 3-10: Valley Boulevard West of I-710



I-10 via Mission Road above-grade approach (S1-A1.3) and I-10 via Mission Road below-grade approach (S1-A1.4) – These alignment alternatives provide a connection point for the LA-SD Section in the vicinity of First Street just west of the Los Angeles River. The alignment would be above-grade over the Los Angeles River, turning north to follow North Mission Road east of the River. Each of these alignments then follows North Mission Road and then Valley Boulevard to the I-10 ROW, crossing over the I-710 and continuing in the median of I-10 east of I-710. A1.3 is above-grade along the entire alignment. A1.4 generally follows the same horizontal alignment, but is below-grade for 2.2 miles between approximately US 101 and North Soto Street.

I-10 via I-5/First Street above-grade approach (S1-A1.5) and I-10 via I-5/First Street below-grade approach (S1-A1.6) – These alignment alternatives include a connection point to the LA-SD Section in the vicinity of First Street west of the Los Angeles River, similar to A1.3/A1.4. The alignment then turns north in a broad curve linking to the I-5 ROW approximately 500 feet south of where I-5 crosses First Street. The alignment follows I-5 north turning east to the north side of the I-10 ROW, crossing over the I-710 and continuing in the median of I-10 east of I-710. A1.5 is above-grade along the entire alternative. A1.6 generally follows the same horizontal alignment but is below-grade for approximately 2.8 miles from US 101 to North Herbert Avenue. Figure 3-11 shows the below-grade profile east of North Herbert Avenue.

Figure 3-11: Below-Grade Alignment Near North Herbert Avenue

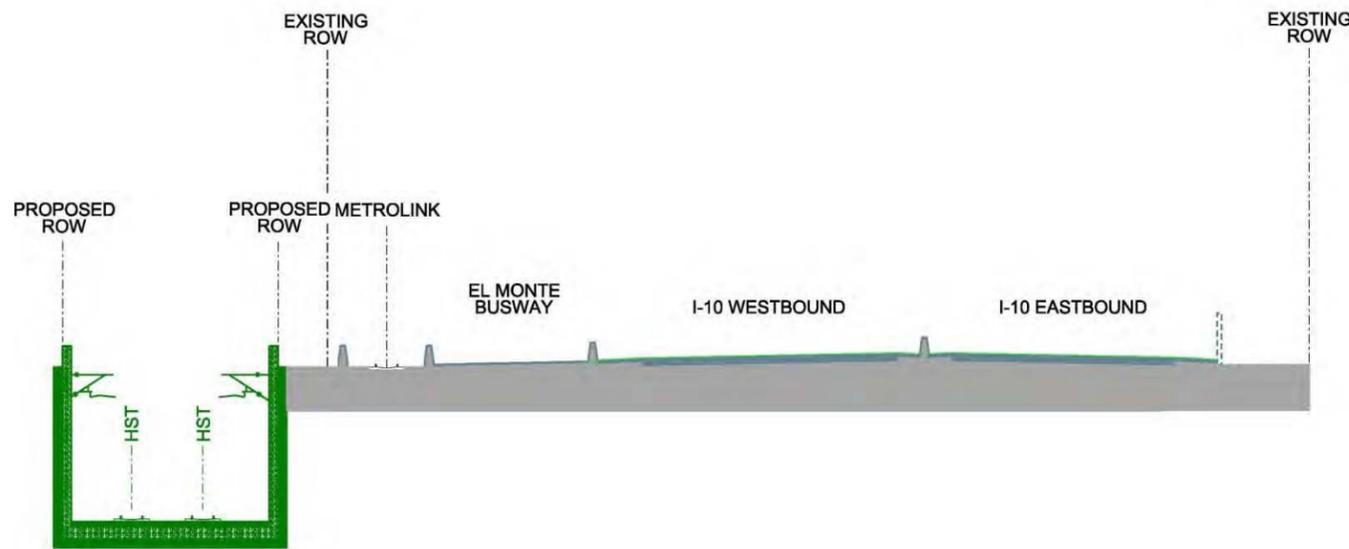


Figure 3-12: SR 60 from I-710 to I-605

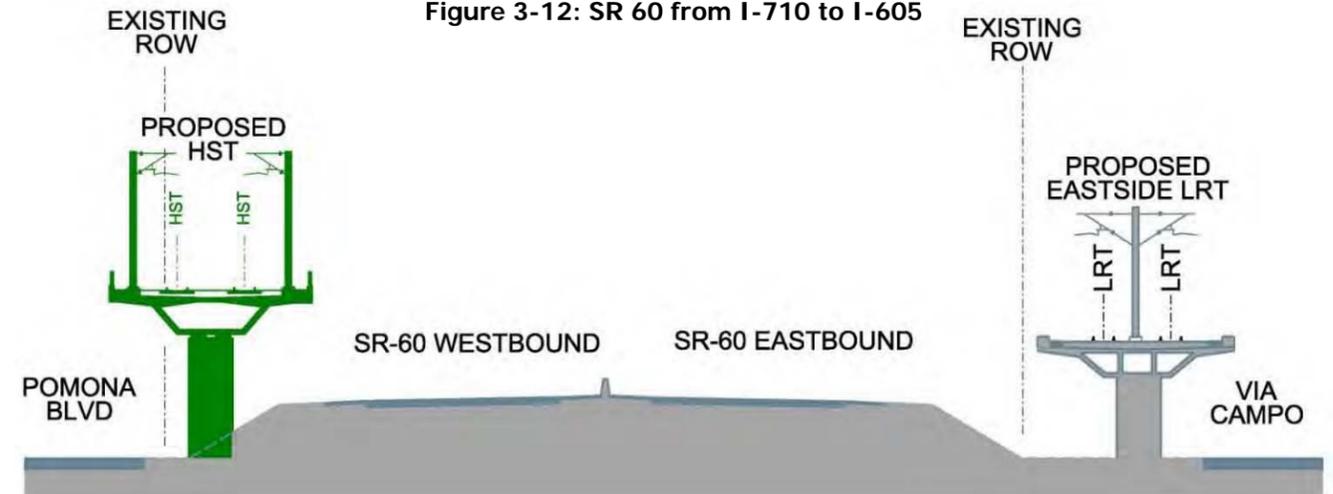


Figure 3-13: SR 60 in Monterey Park at Greenwood Avenue



I-10 via I-5/Sixth Street above-grade approach (S1-A1.7) and I-10 via I-5/Six Street below-grade approach (S1-A1.8) – These alignment alternatives follow the LA to Anaheim HST alignment on the west side of the Los Angeles River to approximately Sixth Street, where the alignment turns east in a broad curve crossing the Los Angeles River and then turns north to follow I-5. The alignment follows I-5, turning east and crossing to the north side of the I-10 ROW east of I-5, crossing over I-710, and continuing in the median of I-10 east of I-710. A1.7 is above-grade along its entire alignment and hugs the east side of I-5 north of Sixth Street. A1.8 follows a horizontal alignment approximately 500 feet east of I-5 north of Sixth Street, tying back the east side of the I-5 ROW north of First Street, but it is below-grade for approximately 4.1 miles from a point just north of Sixth Street on the west side of the river and proceeds under the Los Angeles River to a point also just east of North Herbert Avenue, similar to A1.6.

In addition to LAUS, a station option is being considered at the El Monte Transit Center for all of the S1-A1 alternatives.

S1-A2: LAUS to I-605 via SR 60

The SR 60 alignment alternative extends from LAUS in an easterly direction along SR 60 within state highway ROW through the cities of Los Angeles, Monterey Park, Montebello, South El Monte, and unincorporated Los Angeles County. This alignment alternative extends from the connection point south of LAUS east to where I-605 connects to I-10—an approximate distance of 16 miles. From a point west of I-710 to the I-10/I-605 interchange area, this corridor has a predominantly above-grade configuration along the north side of the SR 60 transportation corridor to avoid conflicting with the proposed SR 60 Alternative for the Eastside Light Rail Transit (LRT) extension that is planned on the south side of the freeway. Figure 3-12 provides a cross-section of this alternative.

The SR 60 Alternative would require an elevated guideway as high as 80 feet to pass over the four-level SR 60/I-710 interchange. In addition, the horizontal geometrics of SR 60 would require several skewed crossings of the freeway in order to achieve minimum desirable speeds for HST. Figure 3-13 provides a typical view of the existing SR 60 corridor traversed by this alternative in the city of Monterey Park; the alignment would be on the north side of SR 60 in the location depicted. This alternative would cross the Whittier Narrows Regional Park, an EPA Superfund site, various major utilities including capped and active oil wells, and the Southern California Edison transmission tower facilities.

On the east end of this corridor approaching I-605, the alignment turns north and crosses to the west side of I-605, crosses the San Gabriel River twice, and then turns east and crosses over I-605 just south of the I-605 and I-10 interchange, before joining the I-10 on the south side.

There are three LAUS approach alignment alternatives evaluated in the Preliminary Alternatives Analysis for the connection to LAUS on the west end of the SR 60 Alternative. These connections are shown on Figure 3-9 and described below.

SR 60 via First Street above-grade approach (S1-A2.1) and SR 60 via First Street below-grade approach (S1-A2.2) – These two alignment alternatives follow the same path as A1.5 and A1.6 out of LAUS, diverging from the LA to Anaheim Section at First Street. However, after crossing the Los Angeles River they continue southeast rather than turning east. At approximately the I-5/I-10/SR 60 interchange, these two alignments would turn east, tying into the north side of the SR 60 ROW. A2.1 is the above-grade alternative and A2.2 is the below-grade alternative for this segment. A2.2 would include a 2.4-mile below-grade section from approximately Fourth Street east of the Los Angeles River to approximately East Third Street.

SR 60 via Sixth Street below-grade approach (S1-A2.3) – This is a below-grade alignment alternative that continues out of LAUS on the west side of the Los Angeles River to approximately Sixth Street then turns east under the Los Angeles River, under I-5/I-10 and SR 60 to the north side of SR 60 at approximately East Third Street.

In addition to LAUS, a station option is being considered at El Monte – I-605.

SR 60 is one of Southern California’s major east-west freeways from Downtown Los Angeles to the Inland Empire. In Los Angeles County, SR 60 has been identified as an alternative for not only the HST program but also as part of Metro’s Gold Line Eastside LRT project. The Eastside LRT project represents the second phase of an existing LRT system into East Los Angeles. Metro is currently preparing its Draft EIR/EIS for the next leg of this system, which includes two alternatives: SR 60 and Washington Blvd. While the selection of an alternative by Metro is scheduled by December 2011, both Metro and the Authority must coordinate the possibility that SR 60 may be selected as the preferred alternative for both proposed projects. While the feasibility of both programs operating along SR 60—not to mention the potential of additional carpool facilities and/or truck lanes on SR 60—is yet to be further analyzed, the Authority acknowledges the challenges presented by the potential co-existence with another major rail system along this corridor.

While many other LAUS connections have both below-grade and above-grade options, only a below-grade option is shown for S1-A2.3. An attempt was made to develop an above-grade option, but it would conflict with the Seventh Street bridge over the Los Angeles River and cut diagonally through an existing neighborhood on the east side of the river. Unlike other LAUS connection alignments, this alignment would not be along an existing transportation corridor, resulting in considerable disruption to the fabric of the neighborhood. For these reasons a below-grade option was not developed further for this alignment.

S1-A3: LAUS to East of I-605 via UPRR

This alignment alternative follows the LA to Anaheim Section alignment from LAUS joining the existing UPRR ROW from Redondo Junction to I-605 through the cities of Los Angeles, Vernon, Commerce, Montebello, Pico Rivera, and Whittier, continuing east in the UPRR ROW to a point east of I-605, a distance of approximately 15 miles. The alternative would be in an above-grade configuration generally on the north side of the existing main UPRR freight tracks within the UPRR ROW. Figure 3-14 shows the alignment on the UPRR ROW in the vicinity of Montebello where the HST is within the UPRR ROW. The configuration of the SR 60 is above-grade until approximately Peck Road east of Pico Rivera where it transitions to at-grade, passes under SR 60, and joins S1-A7 as described below.

The geometrics of the UPRR alignment result in highly constrained geometry through Pico Rivera that would limit HST speeds to less than 70 mph. A physical separation and/or barrier between the HST and freight operations consistent with FRA guidelines would be required as part of this alignment in the portions that are at-grade.

There are two LAUS approach alignment alternatives evaluated in the Preliminary Alternatives Analysis for the connection to LAUS on the west end of the UPRR alignment alternative. These connections are shown on Figure 3-9 and described below.

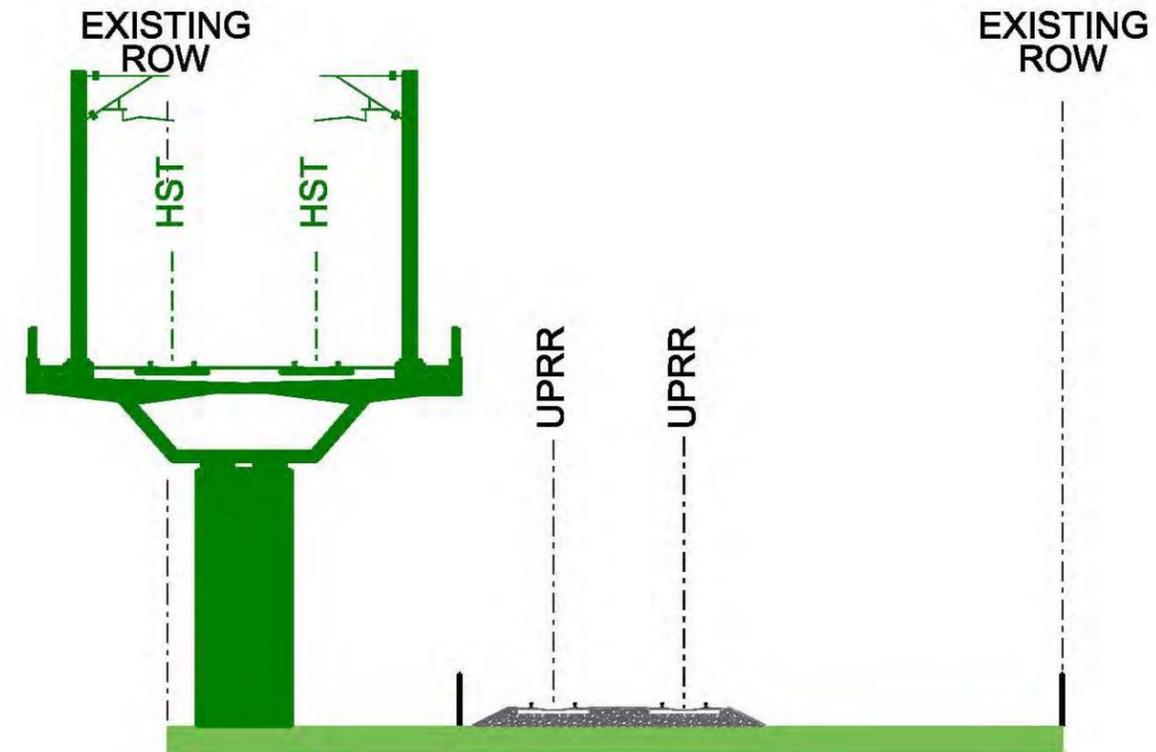
LAUS to East of I-605 via UPRR via Sixth Street below-grade approach (S1-A3.1) – This alignment alternative also follows the same path as A1.5 and A1.6 out of LAUS, continuing on the LA to Anaheim Section alignment to Sixth Street, where it transitions to a below-grade profile under the Los Angeles River and I-10, before turning east at approximately Olympic Boulevard, crossing under the Los Angeles River, returning to above-grade west of South Grande Vista Avenue, and joining the UPRR ROW east of Grande Vista Avenue.

LAUS to East of I-605 via UPRR via Redondo Junction above-grade approach (S1-A3.2) – This alignment alternative also follows the same path as A1.5 and A1.6 out of LAUS, continuing on the LA to Anaheim Section Dedicated Track

alternative alignment under the I-10 and East Olympic Boulevard and over the Los Angeles River to an above-grade profile and joining the UPRR ROW east of Downey Road.

Other than LAUS, there are no station options along the alignment.

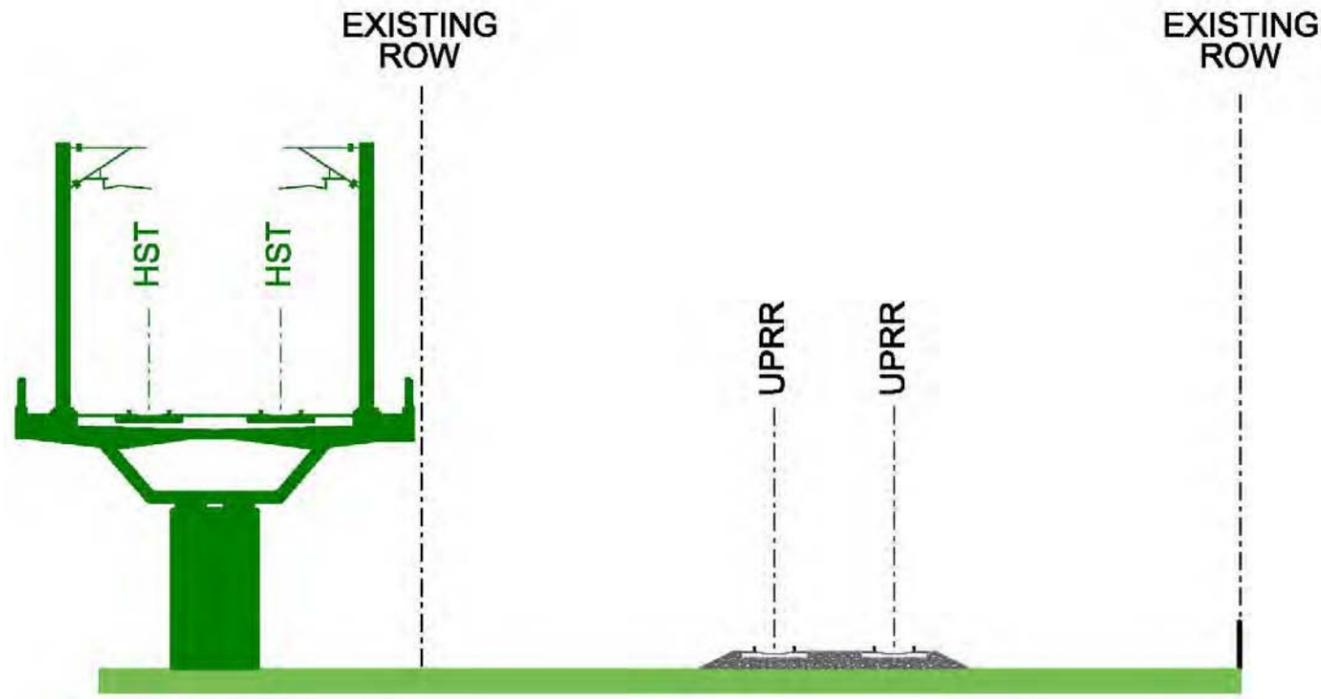
Figure 3-14: UPRR Alignment at Montebello



S1-A4: LAUS to I-605 via UPRR Adjacent

This alignment alternative follows the LA to Anaheim Section alignment from LAUS, aligning on the north side and immediately adjacent to the UPRR ROW from Redondo Junction to the I-605 through the cities of Los Angeles, Vernon, Commerce, Montebello, Pico Rivera, and Whittier. Figure 3-15 is a cross section of the alignment between Redondo Junction and I-605 where HST is outside of the UPRR ROW. On the east end of this corridor approaching I-605, the alignment turns north and crosses to the west side of I-605, crosses the San Gabriel River twice, and then turns east and crosses over I-605 just south of the I-605 and I-10 interchange, joining the I-10 on the south side. The approximate distance of this alignment alternative is 15 miles.

Figure 3-15: UPRR Adjacent from Redondo Junction to I-605



This alternative is a variation from Alternative S1-A3 because it places the HST track system adjacent to the UPRR ROW. The alignment alternative would be located outside the north boundary of the UPRR ROW and located along present-day industrial and other uses that front the UPRR ROW. The alignment is assumed to be fully aerial in its entire configuration. The geometrics of the UPRR Adjacent alignment result in highly constrained horizontal geometry through Pico Rivera that would limit HST speeds to less than 70 mph. For a higher design speed, larger radius curves that deviated away from the existing railroad alignment would be required.

There are two LAUS approach alignment alternatives evaluated in this Preliminary Alternatives Analysis for the connection to LAUS on the west end of this alignment alternative. These connections are shown on Figure 3-11 and described below.

LAUS to I-605 via Sixth Street below-grade approach (S1-A4.1) – This alignment alternative is identical to segment S1-A3.1 described above. This alignment alternative follows the same path as A1.5 and A1.6 out of LAUS, continuing on the LA to Anaheim Section alignment to Sixth Street, where it transitions to a below-grade profile under the Los Angeles River and I-10, then turns east at approximately Olympic Boulevard, crossing under the Los Angeles River, returning to above-grade west of South Grande Vista Avenue and joining the UPRR ROW east of Grande Vista Avenue.

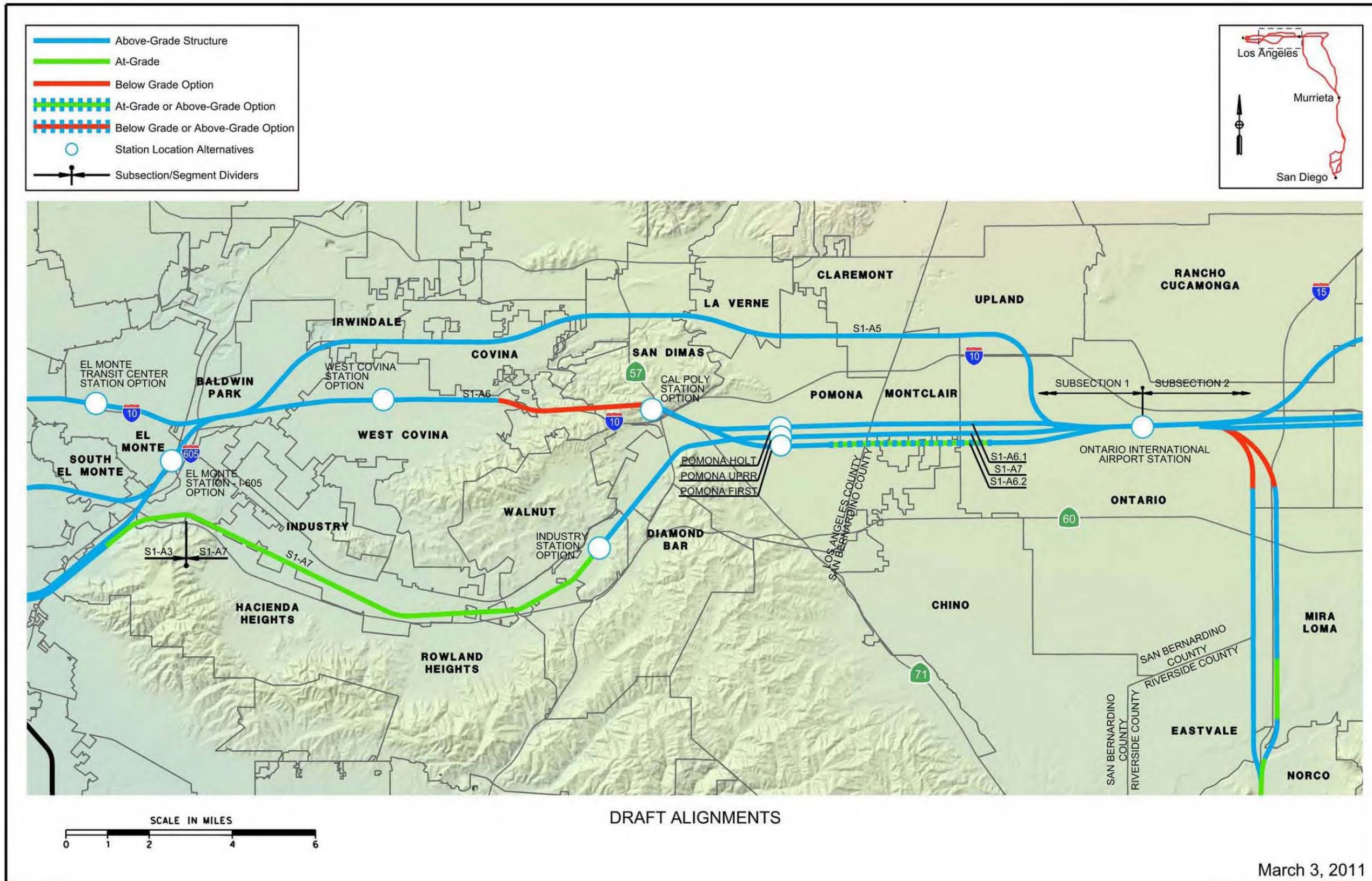
LAUS to I-605 via UPRR via Redondo Junction above-grade approach (S1-A4.2) – This alignment alternative is identical to segment S1-A3.2 described above. This alignment alternative follows the same path as A1.5 and A1.6 out of LAUS, continuing on the LA to Anaheim Section Dedicated Track alignment alternative under the I-10 and East Olympic Boulevard and over the Los Angeles River to an above-grade profile, then joining the UPRR ROW east of Downey Road.

In addition to LAUS, a station option is being considered at El Monte – I-605.

I-605/I-10 to Ontario International Airport

Figure 3-16 shows the three primary alignments alternatives and all the station options between the I-605/I-10 and the Ontario International Airport.

Figure: 3-16: Alignments Alternative and Station Options – Subsection 1 (I-605 to Ontario International Airport)



S1-A5: I-605/I-10 to Ontario International Airport via Metrolink

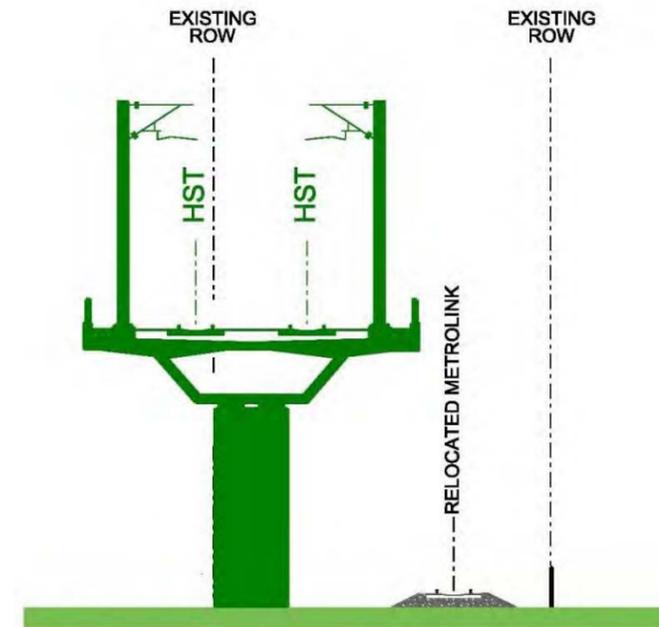
This alternative from I-605/I-10 to Ontario International Airport extends through the cities of Baldwin Park, Irwindale, Covina, West Covina, San Dimas, La Verne, Pomona, Claremont, and Montclair. The alternative is approximately 24 miles long and is located on an existing passenger rail corridor that serves the Los Angeles to San Bernardino Metrolink line. An example of the existing corridor configuration is shown in Figure 3-17.

Figure 3-17: Metrolink Corridor/Claremont at Indian Hill Boulevard



In the western portion of the alternative, the ROW is only 50 feet wide, as shown in Figure 3-18. Due to the narrowness of the corridor in the western portion of the alternative, the HST would operate parallel to Metrolink in an aerial configuration.

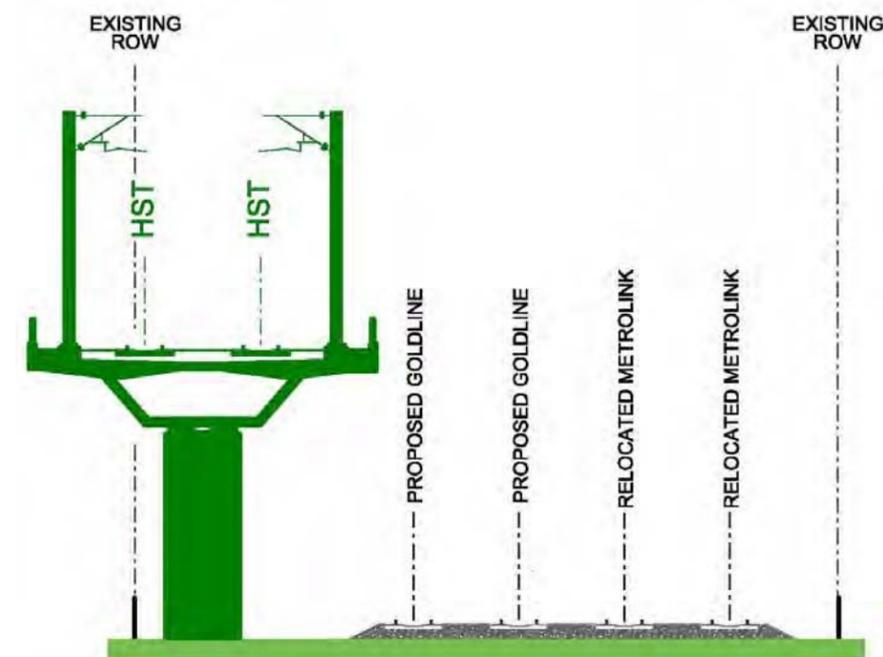
Figure 3-18: Metrolink Corridor with 50-foot ROW



In the eastern portion of the alternative, the ROW is 100 feet wide, but there are plans for the Gold Line to be extended from Pasadena to be within this corridor, as shown in Figure 3-19. On the far west end of this alternative, the HST would leave the Metrolink corridor and travel south along the median of Euclid Avenue to approximately Holt and then connect into the Ontario International Airport Station.

The Ontario International Airport Station is the only station included in this alignment alternative.

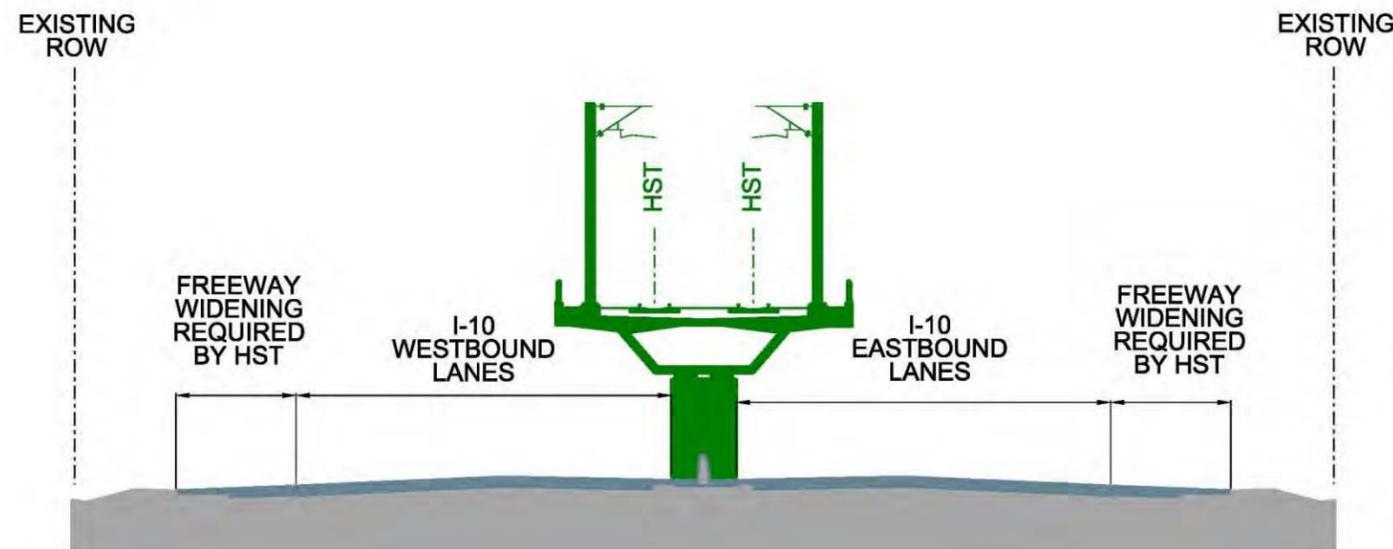
Figure 3-19: Metrolink Corridor with 100-foot ROW



S1-A6: I-605/I-10 to Ontario International Airport via I-10/Holt or I-10/First/State – This alignment alternative extends east from the I-10/I-605 interchange along the I-10 corridor through the cities of Baldwin Park, West Covina, Covina, San Dimas, and Pomona.

From the I-605 to just east of Athol Street in Baldwin Park, the HST alternative is proposed on the south side of I-10. This is done to be compatible with the proposed southbound I-605 to eastbound I-10 flyover connector that will run parallel to I-10 on the south side in an aerial configuration from the I-605 to Athol Street before dropping down to merge into the freeway. Figure 3-20 shows the cross section of the alternative in the I-10 ROW between I-605 and Athol Street. To the east of Athol Street, the HST alignment would transition into the median of I-10 in response to comments received from the various cities and the SGVCOG.

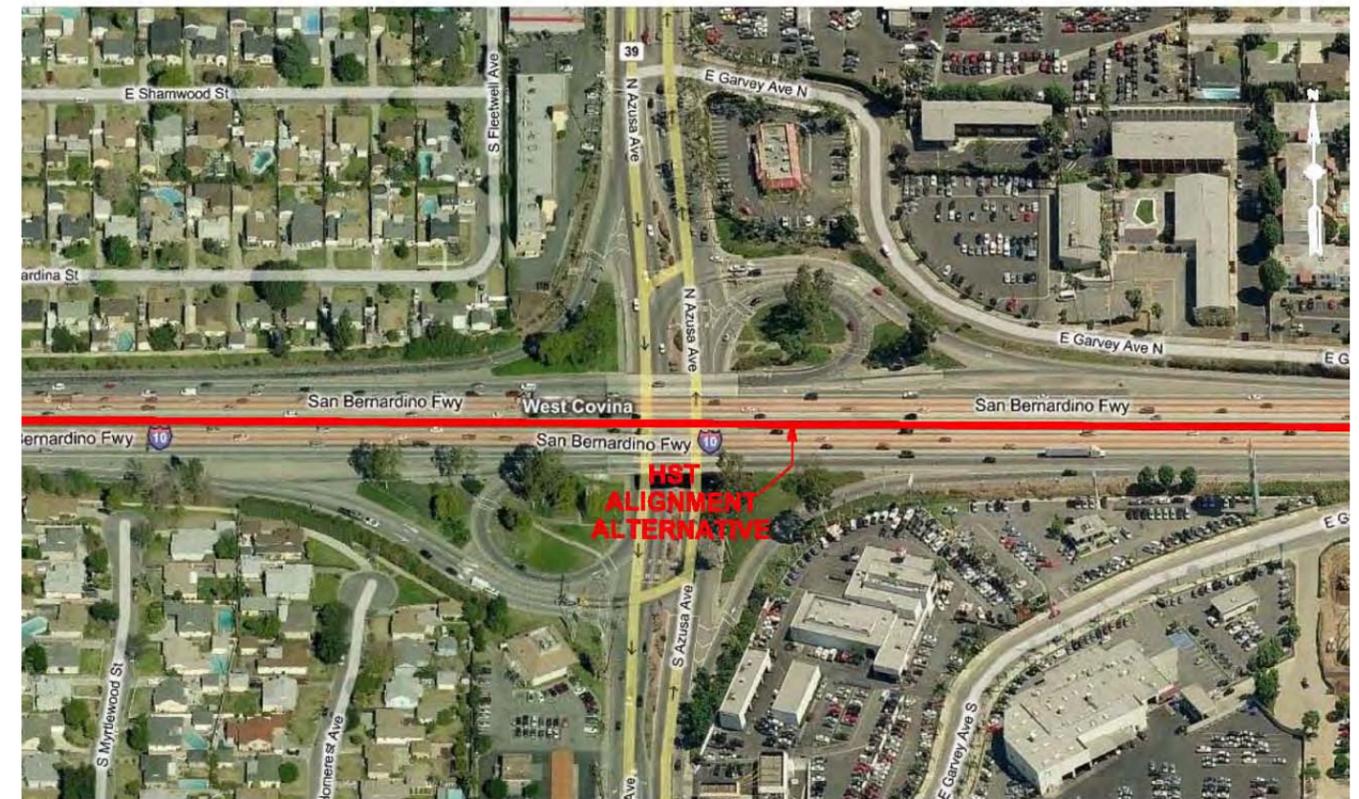
Figure 3-20: I-10 from Athol Street to West Covina



The proposed connector at the I-10/I-605 interchange will add another level to the freeway-to-freeway interchange. If HST were in the median of I-10 crossing the I-605, this would require the HST to be three levels (approximately 75 to 80 feet) above I-10 to pass over this proposed connector. Placement of HST on the south side of I-10 allows the HST profile to be approximately at the same elevation as the proposed connector ramp (approximately 50 feet above I-10) as the ramp proceeds east from the I-605 interchange and passes over Athol Street before merging into eastbound I-10.

The HST alignment will continue in the median of I-10 from east of Athol Street to West Covina, as shown in Figure 3-21. In the area of Vincent Avenue, there is a major shopping center and commercial center on the south side of I-10, while the north side of the freeway is primarily single-family residential. In discussions with the City of West Covina, it was agreed that if a station is to be located in this area it would be desirable to locate it on the south side of the freeway as opposed to trying to elevate it over the middle of the freeway. Thus, the HST alignment would need to be on the south side of the freeway to accommodate a feasible station design. Because of this, the HST alignment is proposed to transition from the median of the freeway to the south side of the freeway west of the West Covina Station site, and then transition back to the median of the freeway east of the station site.

Figure 3-21: I-10 in West Covina at Azusa Avenue



To the east of West Covina, the height of the San Jose Hills and the excessive grades required to follow the I-10 corridor result in the need for special design consideration. Between approximately South Barranca Avenue in West Covina and I-10 near San Dimas, the alternative enters an approximate 4.3-mile, below-grade profile proposed to be constructed as a tunnel through the San Jose Hills.

Initial design concepts projected the tangent alignment of I-10 through West Covina straight into the hills, with one curve near the east end of the tunnel to an alignment that followed SR 71 into Pomona. This resulted in a tunnel alignment that was underneath many residences in the San Dimas area. The City of San Dimas, through corridor city meetings, has suggested a tunnel profile that follows I-10 more closely to minimize the proximity to homes. A constraint in doing this is the presence of the Forest Lawn Memorial Park cemetery, which is immediately south of I-10 in the San Jose Hills. While an alternative through the cemetery property would be over 100 feet below ground level, it is recognized that the State of California does not have eminent domain authority over cemetery property so the alternative is shown avoiding the cemetery property. Discussions with the cemetery owners are needed to determine if they would be agreeable to a tunnel alternative underneath their property.

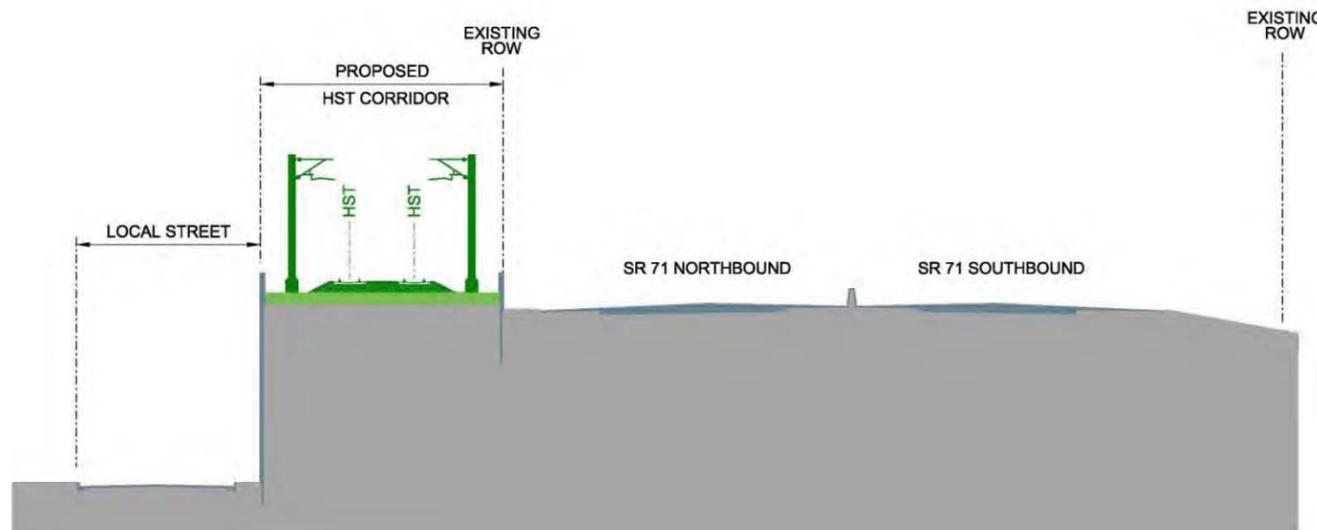
The tunnel portal locations are a key design issue that require further study. The current design concept is to have a western tunnel portal somewhere along I-10 near Barranca Avenue or Grand Avenue in West Covina, and an eastern tunnel portal in the vicinity of the I-10/SR 57/SR 71 interchange in Pomona. The eastern portal location will need to consider the existence of an earthquake fault near the I-10/SR 57/SR 71 interchange. Plans show “bubble areas” to denote that the precise locations of these portals is still to be determined through further discussions with the cities involved, which would further impact the extent that the HST alignment could stay within the I-10 median.

Another issue related to the tunnel alternative through the San Jose Hills is the attempt to locate a station option near the campus of Cal Poly University, Pomona. In the 2005 Statewide Program EIR/EIS alignment studies, the university expressed interest in considering a station along the UPRR to the southeast of their campus. In the development of the I-10 Alternative, an attempt was made to locate a Cal Poly station on the I-10 alignment. Due to

the topography of the area, and the limitations on the alternative posed by the cemetery, the only viable location would have been on the north side of the campus. Cal Poly staff has indicated that such a station location would have difficult access issues and would not be consistent with their campus master plan. They have expressed that they do not desire to see this station option carried forward for further study.

The alignment then follows SR 71 south of I-10. Figure 3-22 shows the proposed HST alignment on the east side of SR 71 in this area.

Figure 3-22: HST Alignment Along SR 71 in Pomona



Approaching Holt Avenue, there are two approach alignments into Ontario International Airport through Pomona, Montclair, and Ontario, described below.

Holt Boulevard above-grade approach (S1-A6.1) – This is an above-grade configuration that extends from SR 71 (Pomona) to the Ontario International Airport Station; a distance of approximately 6 miles. It would be located above the median of Holt Avenue/Boulevard. Figure 3-23 shows the Holt Corridor looking east in Pomona. Figure 3-24 shows the HST above-grade in the Holt Corridor. The HST guideway would be on columns in the middle of the street. A median would need to be developed to separate the columns from the adjacent traffic lanes.

First Street / State Street above-grade or at-grade approach (S1-A6.2) – This is within the ROW of existing First Street in Pomona and existing State Street in Montclair and Ontario, a distance of approximately 7 miles. The alternative would be above-grade except for a portion from west of Ramona Avenue to east of Mountain Avenue, where it could be either above-grade or at-grade. Figure 3-25 shows the above-grade option and figure 3-26 shows the at-grade option. The above-grade option would be on an aerial guideway above either First Street (in Pomona) or State Street (in Montclair and Ontario). The at-grade option would be within the existing street ROW, requiring relocation of the street to the south to maintain access to adjacent properties.

Figure 3-23: Holt Corridor Looking East in Pomona



Figure 3-24: Holt Avenue Above-Grade

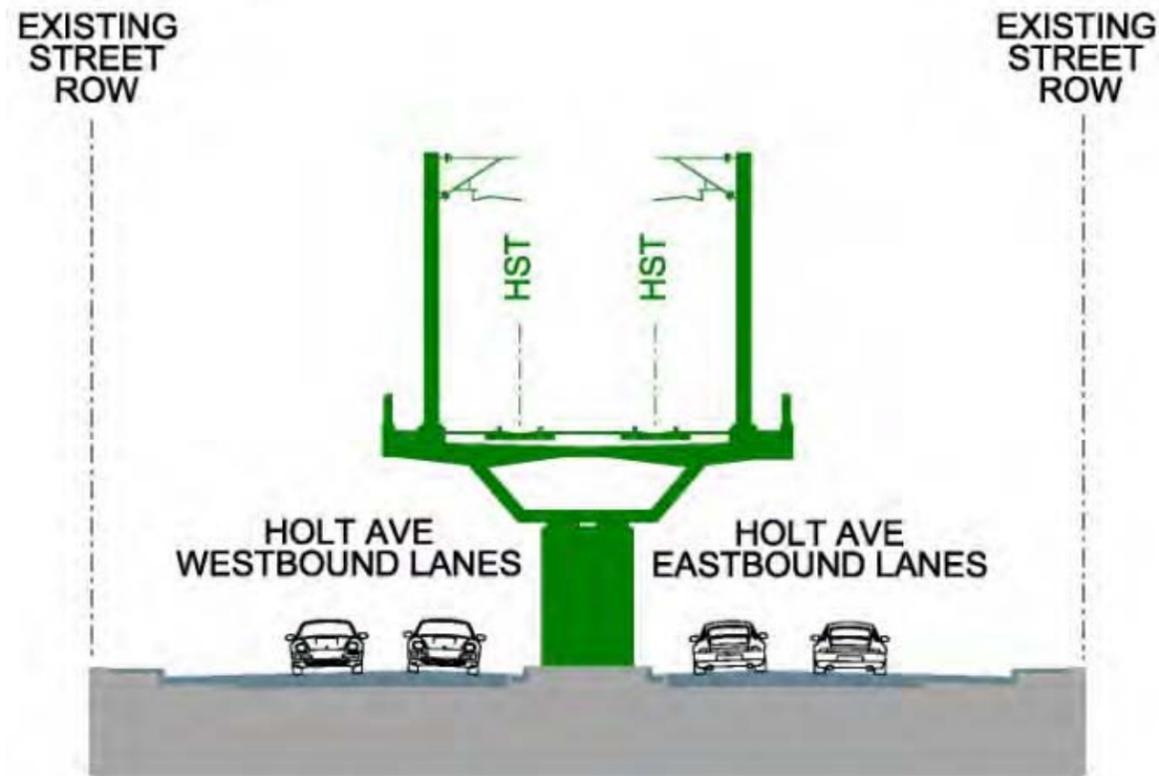


Figure 3-25: First Street/State Street Aerial Option in Pomona and Montclair

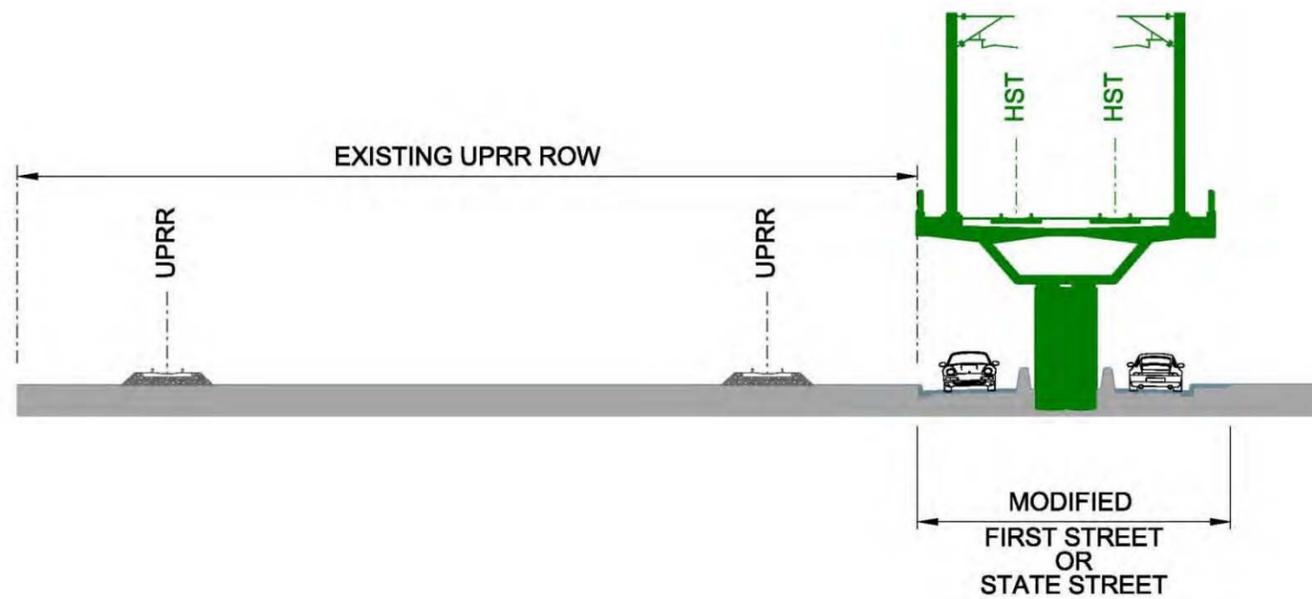
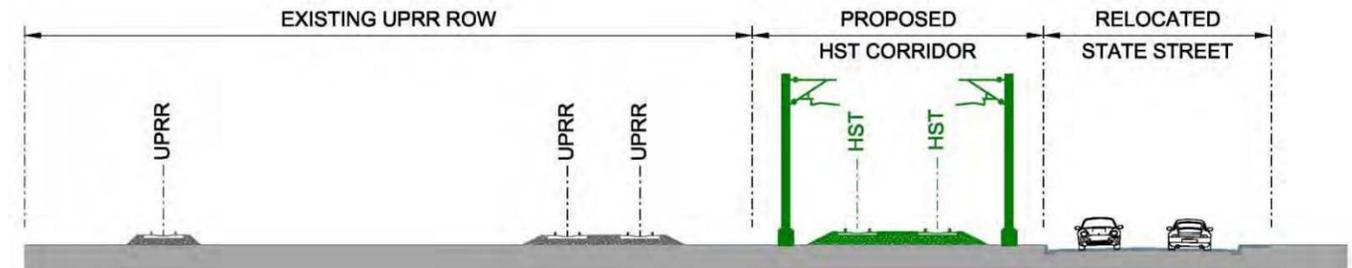


Figure 3-26: First Street/State Street At-Grade Option in Pomona and Montclair



Station options are being considered at West Covina, Cal Poly Pomona, Pomona/Holt, and Pomona/First.

S1-A7: UPRR from East of I-605 to Ontario International Airport – This alignment is a continuation of S1-A3 and follows the 2005 Statewide Program EIR/EIS Program Alignment through the cities of Industry, Pomona, Montclair, Ontario, and unincorporated Los Angeles County. The configuration is above-grade and generally located along the north side of the freight operations within the UPRR ROW.

Station options considered in this alignment are at City of Industry and in the Pomona/UPRR area.

3.3.4 Ontario International Airport to Murrieta/Temecula Subsection (S2)

The Ontario International Airport to Murrieta/Temecula subsection extends from the Ontario International Airport Station east and south through San Bernardino and Riverside Counties to the confluence of I-15 and I-215 in the Murrieta/Temecula community. This subsection is depicted on two maps. Figure 3-29 details the alignment and station options in the northern portion of the subsection from Ontario International Airport to North Riverside County. Figure 3-42 details the alignment and station options in the southern portion of the Subsection from North Riverside County to Murrieta/Temecula. The alignments range in distance from approximately 52 to 67 miles in length depending upon whether they access San Bernardino or whether they follow the I-215 or the I-15 transportation corridor. The alternative alignments within Subsection 2 are listed in the box. Detailed descriptions follow.

I-215 Alignments

Metrolink Corridor through San Bernardino and South along I-215 (S2-A1)

The S2-A1 alternative alignment extends through San Bernardino and along the I-215 via three approach alignment alternatives at Riverside:

- S2-A1.1 – San Bernardino/I-215 through Riverside via Chicago Avenue
- S2-A1.2 – San Bernardino/I-215 through Riverside via Iowa Avenue
- S2-A1.3 – San Bernardino/I-215 through Riverside via UC Riverside

UPRR Corridor through Riverside and South along I-215 (S2-A2)

The S2-A2 alternative alignment extends through Riverside and along I-215 via three approach alignment alternatives at Riverside:

- S2-A2.1 – Riverside/I-215 through Riverside via Chicago Avenue
- S2-A2.2 – Riverside/I-215 through Riverside via Iowa Avenue
- S2-A2.3 – Riverside/I-215 through Riverside via UC Riverside

I-10 Corridor through Riverside and South along I-215 (S2-A3)

The S2-A3 alternative alignment extends through Riverside and along I-215 via three approach alignment alternatives at Riverside:

- S2-A3.1 – I-10 through Riverside/I-215 via Chicago Avenue
- S2-A3.2 – I-10 through Riverside/I-215 via Iowa
- S2-A3.3 – I-10 through Riverside/I-215 via UC Riverside

I-15 Alignments

I-15 Corridor (S2-A4)

The S2-A4 alternative alignment extends via I-15 and includes two approach alignment alternatives south of Ontario International Airport:

- S2-A4.1 – Milliken/Hamner to Corona
- S2-A4.2 – I-15 to Corona

The potential HST station alternatives in this subsection (not including Ontario International Airport) are:

San Bernardino Station has two station options. One of these options would be selected as the preferred HST station in this area.

- City of San Bernardino Station Option
- County of San Bernardino I-10 Station Option

North Riverside County Station has four station options. One of these options would be selected as the preferred HST station in this area:

- Riverside Station-Martin Luther King Boulevard Option
- Riverside Station-Watkins Drive Option
- March Air Reserve Base (ARB) Station Option
- Corona Station Option

Murrieta Station has two station options. One of these options would be selected as the preferred HST station in this area:

- Murrieta I-215 Station Option
- Murrieta I-15 Station Option

Alignment Alternatives

Subsection 2 comprises San Bernardino and Riverside counties, otherwise known as the Inland Empire. As a metropolitan area, it is the third largest in the state of California and home to more than four million people. Generally speaking, the Inland Empire welcomes the high-speed train, but local jurisdictions have been active in communicating specific concerns to the Authority. From the west, community impacts on the cities of Montclair and Ontario along Holt Avenue are a concern to the degree that a tunnel configuration has been requested. Both Ontario and San Bernardino envision major transportation centers at their proposed station locations, particularly with multi-modal transit links to Ontario International Airport and downtown San Bernardino.

In Riverside County, two major transportation corridors – the I-15 and I-215 – are potential high-speed train alternatives. The Norco and Eastvale communities express concerns with the I-15 alternative as it relates to equestrian lifestyles and historical properties in this area. The City of Corona favors the I-15 alternative, with plans for expanded development along this corridor and minimizing impacts on endangered species in the area. A potential HOT lane project on I-15 near Lake Elsinore may conflict with the HST station proposed in this area.

Along I-215, the City of Riverside has indicated a preference for a station location at March Air Force Base (AFB) instead of the options near University of California Riverside in order to avoid impacts on this dense college community and maximize ridership potential near March AFB with links to Riverside communities and Moreno Valley. The cities of Murrieta and Temecula envision a station location near the wye where the I-215 and I-15 freeways join, avoiding impacts on commercial and residential properties.

Ontario International Airport Station Approach Alignment

All of the Subsection 2 alternatives begin at the Ontario International Airport Station, which will be located just south of the existing UPRR tracks between Cucamonga Channel and Archibald Avenue. An aerial view of this station area is shown in Figure 3-27. The station is envisioned to be elevated above Airport Drive and the adjoining parking areas, with pedestrian connections to the airport terminals and the proposed Ontario Transit Center, which is planned to be north of the existing railroad track between Cucamonga Channel and Archibald Avenue. Figure 3-28 depicts the Ontario International Airport Master Plan for future development of the airport property. A more detailed discussion of the station site is found in Section 3.3.6.

The proposed station platform location is directly related to the horizontal alignment options of the approach guideway. To the west, there is sufficient distance for flexibility to achieve an acceptable alignment to any of the three corridors (Metro/Metrolink, Holt, or UPRR). To the east, there are more constraints to connect to the five potential corridors (SANBAG Metrolink, I-10, UPRR, Milliken, and I-15). Horizontally, the Milliken and I-15 alignments need to curve 90 degrees to be oriented to the south. Vertically, the Milliken and I-15 alignments need to be below-grade to pass through the runway approach zones at the east end of the airport, and the SANBAG Metrolink, I-10, and UPRR alignments would need to pass over the railroad tracks at some point to be on the north side going to the east. Planned projects in this area include grade separations with the UPRR tracks at Vineyard and Milliken as well as the future extension of the Gold Line from Pasadena to the Ontario Transit Center.

Figure 3-27: Ontario International Airport Existing Conditions



Figure 3-28: Ontario International Airport Master Plan

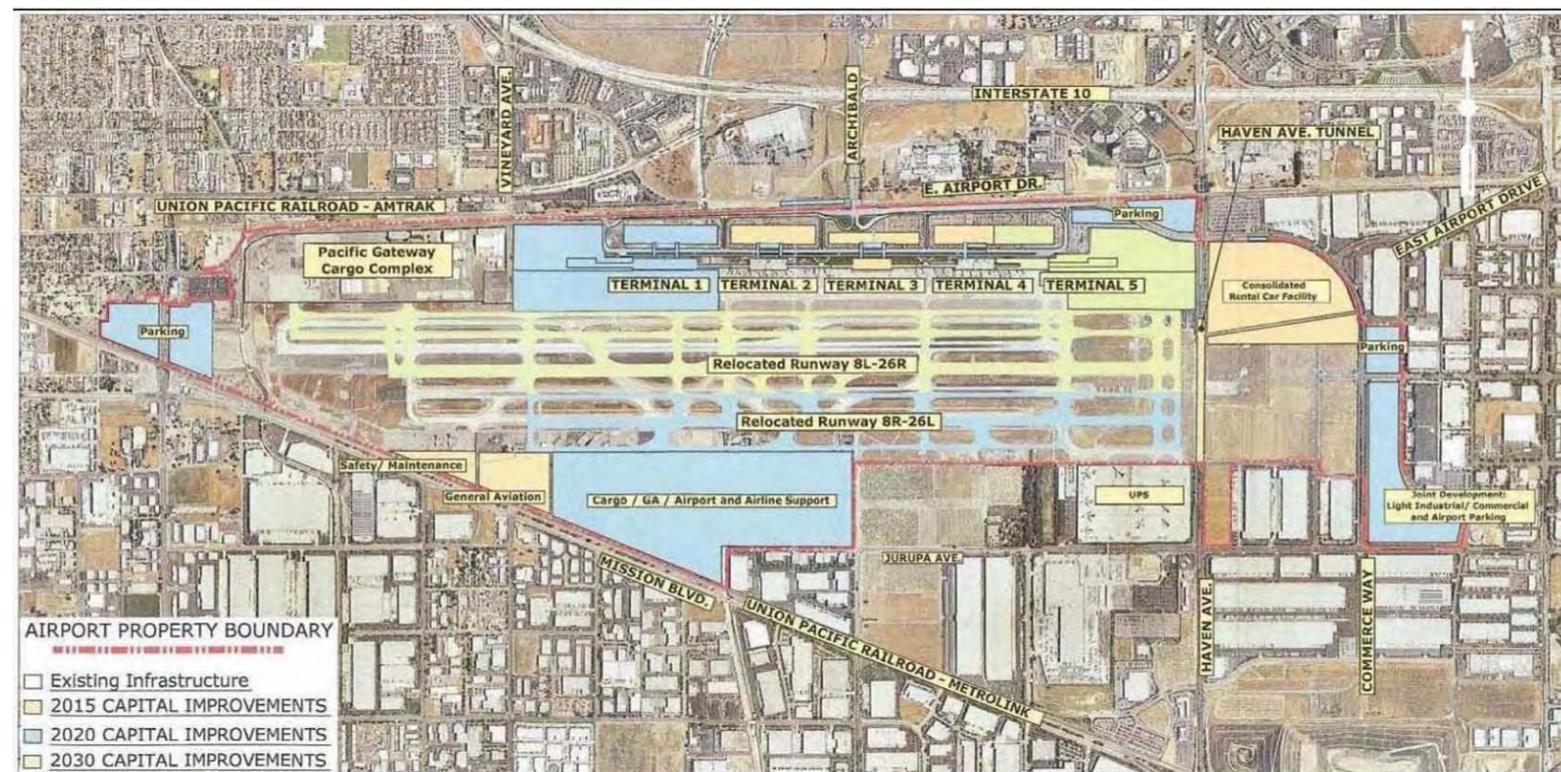
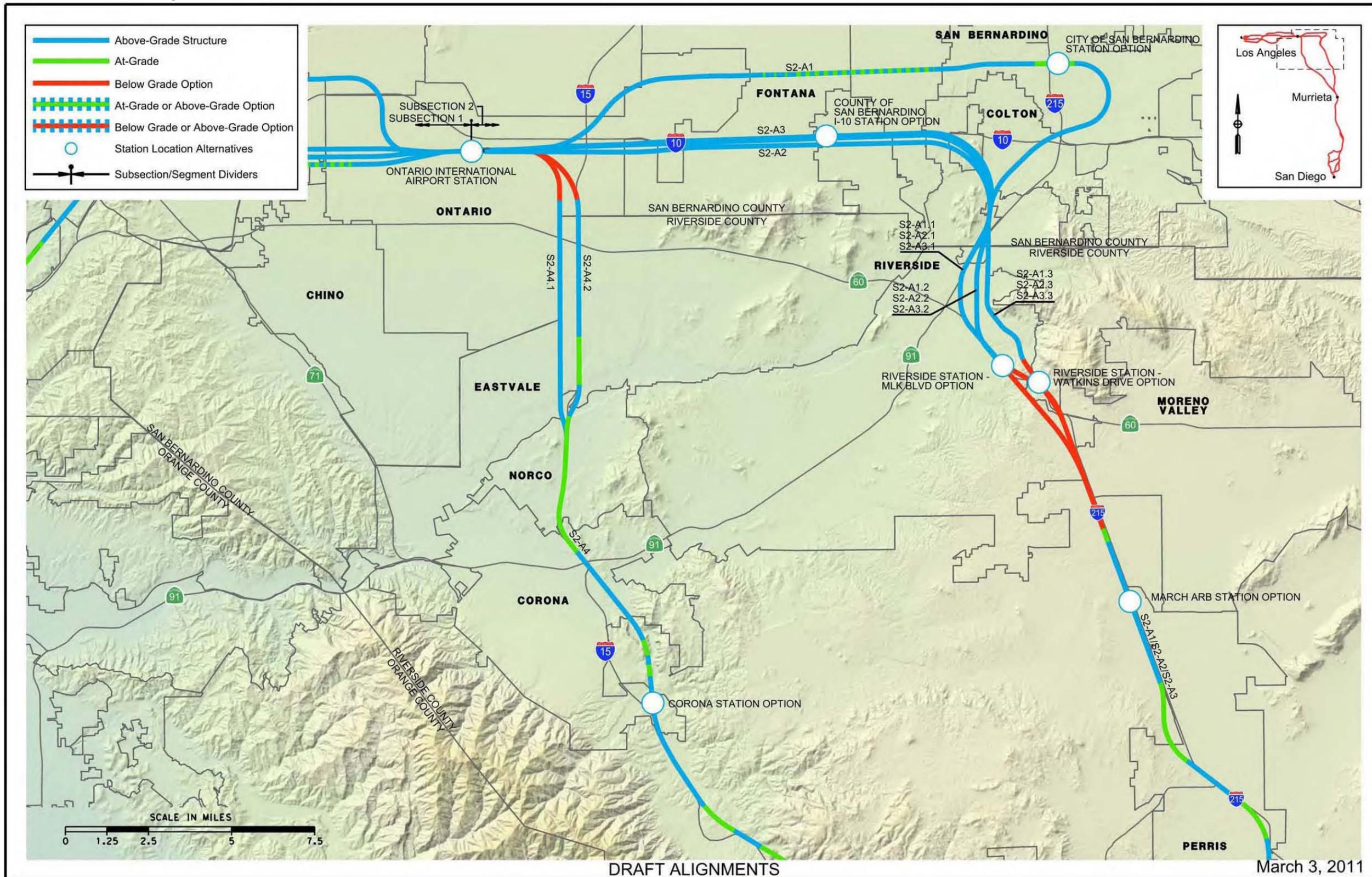


Figure 3-29: Alternative Alignments and Station Options – Subsection 2 (Ontario International Airport to North Riverside County)



I-215 Alignment Alternatives

These alignments travel through the Cities of Ontario, Rancho Cucamonga, Fontana, Rialto, Colton, San Bernardino, Riverside, Moreno Valley, Perris, Menifee, Murrieta and unincorporated San Bernardino and Riverside counties. There are three alignments (S2-A1, S2-A2, and S2-A3) that extend from Ontario International Airport and converge at a common join point in the City of Grand Terrace just north of the San Bernardino/Riverside county line. From this common join point, the alignments diverge again to provide three alternative alignments (via Chicago, via Iowa, and via UCR) through Riverside. The three alignments north of the Grand Terrace join point can be combined with any of the three alignments through Riverside, providing a total of nine possible alignment combinations. The three alignments through Riverside are number S2-AX.1 for Chicago, S2-AX.2 for Iowa and S2-AX.3 for UCR, with the AX referring to either A1, A2, or A3. South of Riverside, the three alignments converge again into another common join point in Moreno Valley. South of this join point there is one alignment alternative in the I-215 corridor to Murrieta.

S2-A1: Metrolink Corridor through San Bernardino and South along I-215. This alignment alternative extends northeast from Ontario International Airport Station and then follows the SANBAG/Metrolink corridor east thru Rancho Cucamonga, Fontana, and Rialto towards downtown San Bernardino where a potential station would be located. The alignment is within the existing railroad ROW in an aerial configuration through Fontana and Rialto, but deviates from the railroad ROW east of Pepper Avenue to provide a straight connection into the desired station location in Downtown San Bernardino. East of the San Bernardino Station the HST alignment swings to the southeast and south and crosses through the City of Riverside on one of three alternatives described below as A1.1, A1.2, and A1.3. From Riverside south, the alignment is located in the I-215 transportation corridor and connects with a HST station in the Murrieta area. This alternative alignment is approximately 67 miles in length and depending on the alignment through Riverside, could have potential HST stations in San Bernardino, Riverside, March ARB, and Murrieta/Temecula.

The Metrolink Corridor from Fontana to San Bernardino is on a ROW that is generally 100 feet wide and is owned by SANBAG. There are limited freight movements on this line, and the San Bernardino to Los Angeles line has the highest ridership of any of the Metrolink lines in Southern California. Most of the route is single track, with some double-track sections. The HST alignment would share the ROW with Metrolink from approximately Cherry Avenue in Fontana to Pepper Avenue in Rialto, requiring relocation of the existing tracks in some locations. Within the section that is proposed to be shared by HST and Metrolink, there are 17 at-grade street crossings of the existing railroad tracks. Figure 3-30 shows the existing Metrolink Corridor in Fontana at Palmetto Avenue. One street, Cherry Avenue, goes over the railroad tracks on a structure, and there are no cross streets that go underneath the railroad tracks. A freight yard exists at the west end of the corridor between Cherry Avenue and Beech Avenue. A small number of sidings exist both to the north and south side of the corridor, providing local freight service to adjacent properties. Figure 3-31 shows the alignment at Fontana where the ROW is shared with HST and Metrolink and HST is in an aerial configuration. With the aerial configuration the HST could be kept within the existing right of way. Figure 3-32 shows the alignment through Fontana and Rialto with an option to be at-grade within the Metrolink corridor. The at-grade option would be within the right of way except at the two existing Metrolink stations (Fontana and Rialto) which would need to be modified.

Figure 3-30: SANBAG Metrolink Corridor – Fontana at Palmetto Avenue

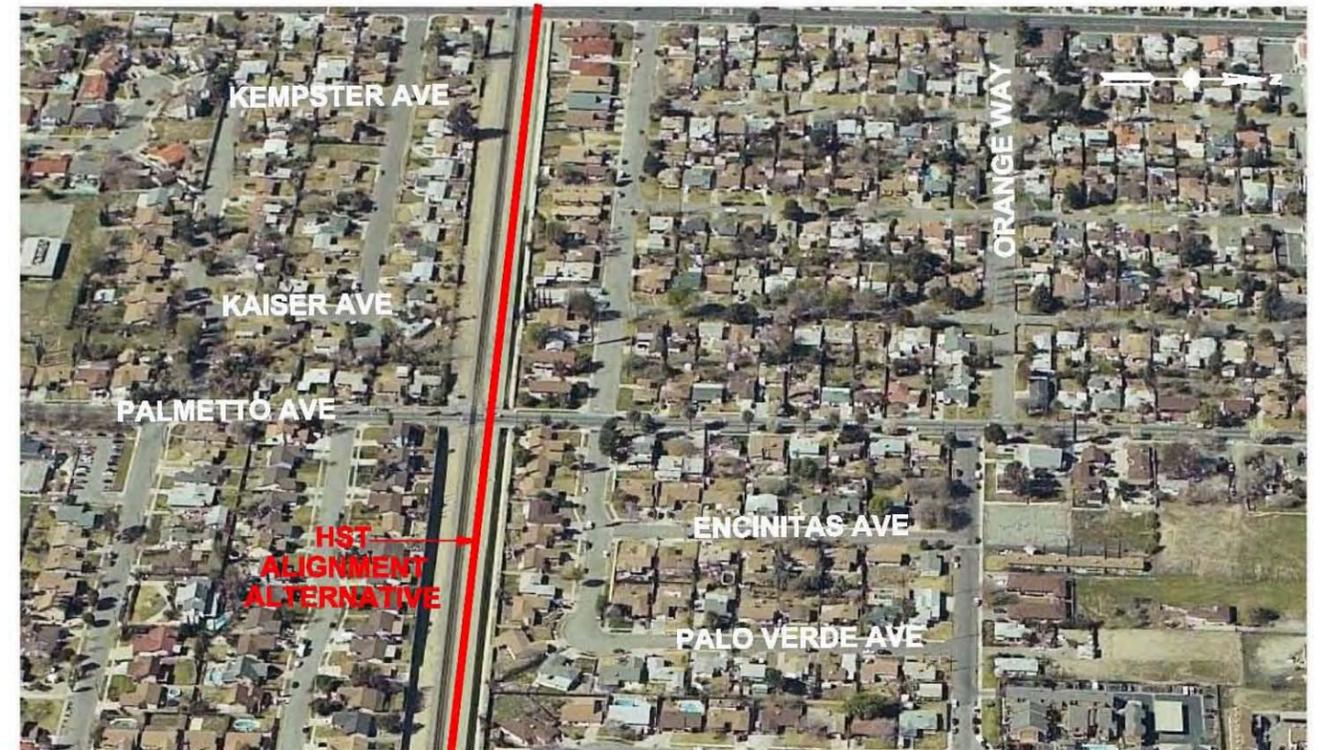


Figure 3-31: Metrolink/HST Shared Right-Of-Way Above-Grade in Fontana and Rialto

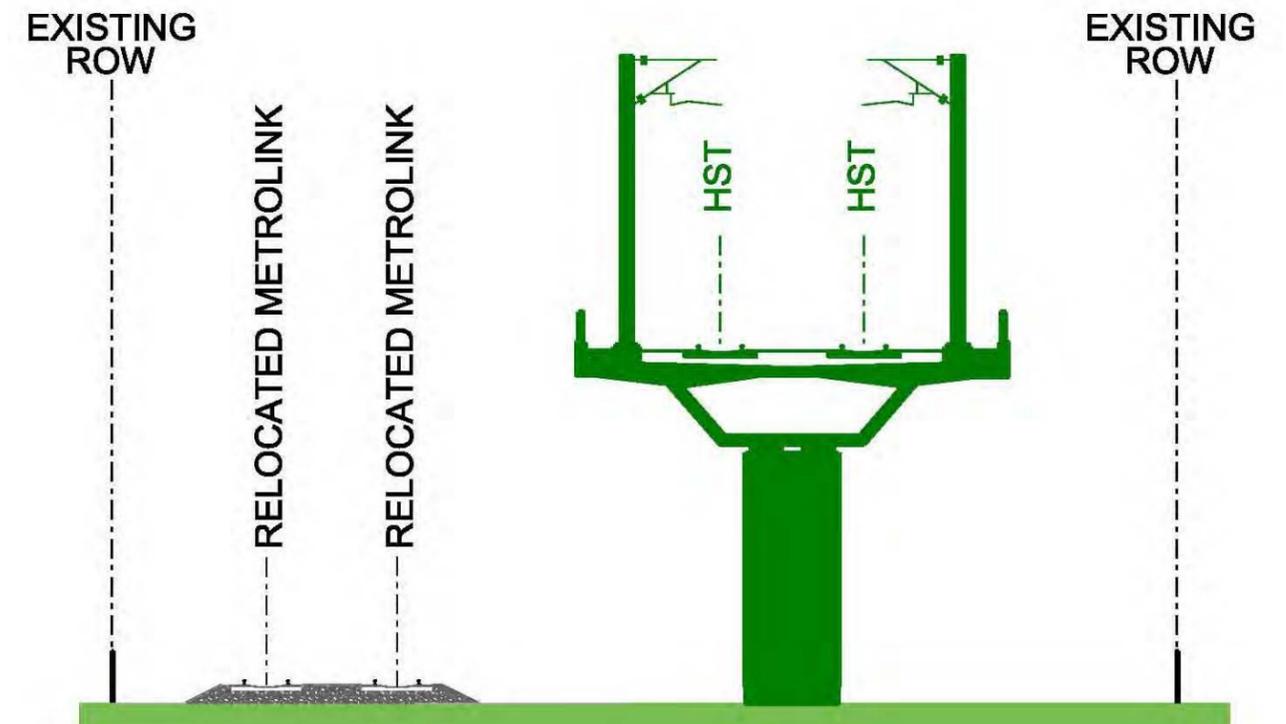
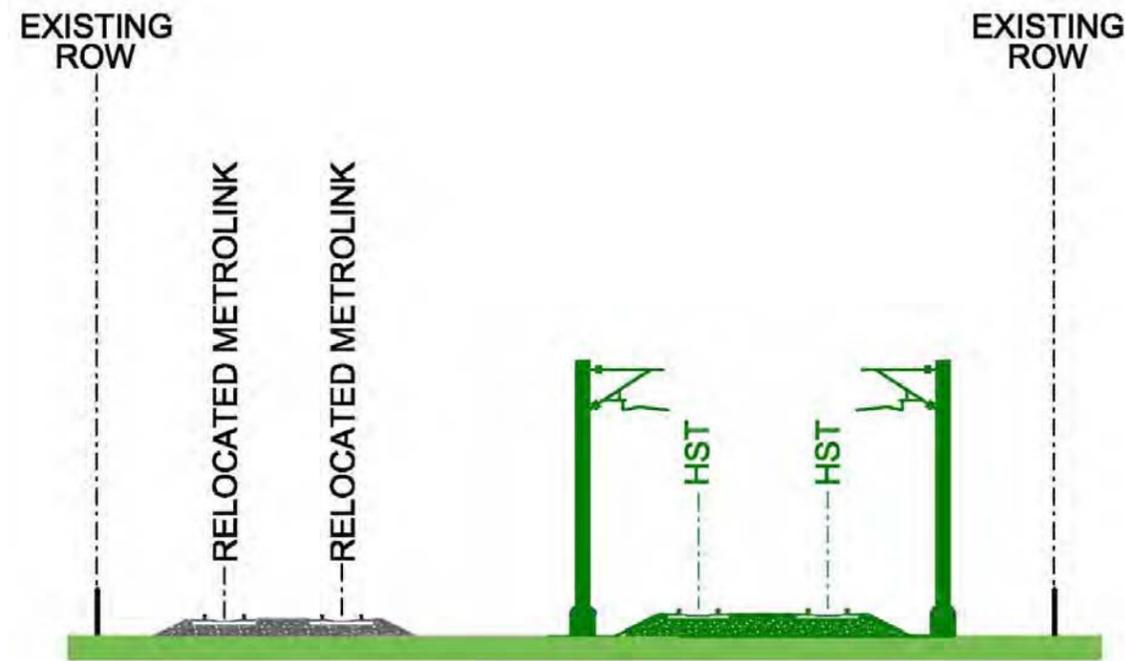
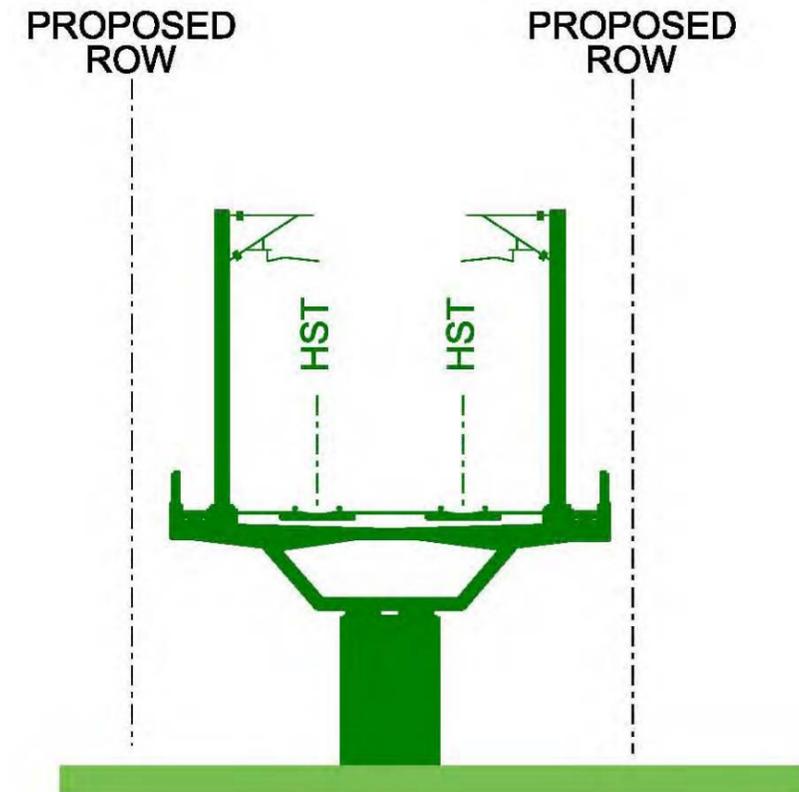


Figure 3-32: Metrolink/HST Shared ROW At-Grade Option in Fontana and Rialto



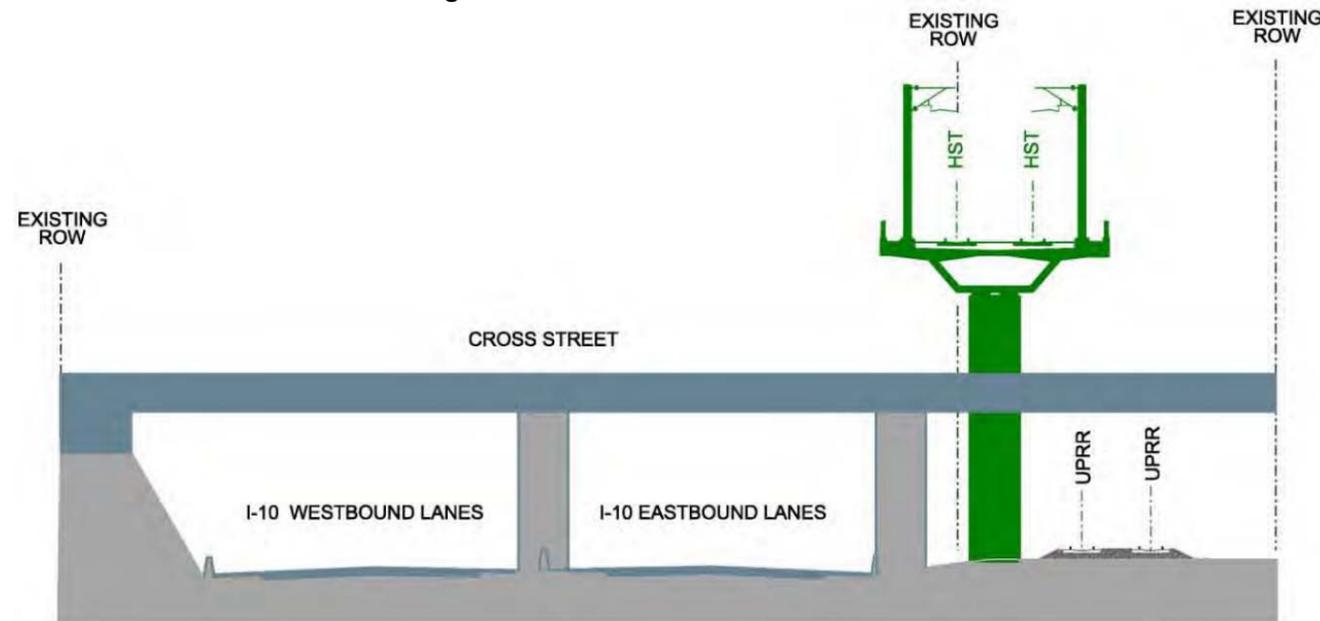
As the HST alignment approaches downtown San Bernardino from the west, the profile is heavily influenced by the existing I-215 freeway. Figure 3-33 shows the above-grade alignment west of I-215, which transitions to be at-grade passing underneath I-215, as suggested by the City of San Bernardino. In the immediate vicinity of the station, local streets could be grade separated by going either under or over the railroad tracks. This configuration would place the HST tracks at approximately the same elevation as the proposed Metrolink and Redlands LRT tracks, making it possible to consolidate the grade separations to cover all three rail systems. East of the City of San Bernardino station, the HST profile transitions to be in an above-grade configuration because of the downward slope of the terrain and the flat HST profile through the station area. Additional discussions with the City of San Bernardino are planned to further define the HST design within Downtown San Bernardino. East of the Downtown San Bernardino Station the alignment curves to the south and follows the north bank of the Santa Ana River across I-10 and I-215 into the City of Colton. The S2-A1 alignment joins with the S2-A2 and S2-A3 alignments in the City of Grand Terrace just north of the San Bernardino/Riverside county line before the alignments diverge again into the three alignments in Riverside.

Figure 3-33: San Bernardino Alternative West of I-215



S2-A2: UPRR Corridor through Riverside and South along the I-215. This alignment alternative follows the UPRR alignment from Ontario International Airport to the Colton Curve, through the cities of Ontario, Fontana, Rialto, and Colton, and then turns south, crossing through the city of Riverside on one of three alignments described below as A2.1, A2.2 and A2.3. The HST alignment would be on an aerial guideway in the north side of the UPRR ROW. There are numerous cross streets that go over the UPRR ROW and I-10, so the HST guideway would need to be high enough (approximately 60 feet high) to pass over each of these cross streets. The general relationships between the UPRR, the tracks, the freeway, and HST are shown in Figure 3-34.

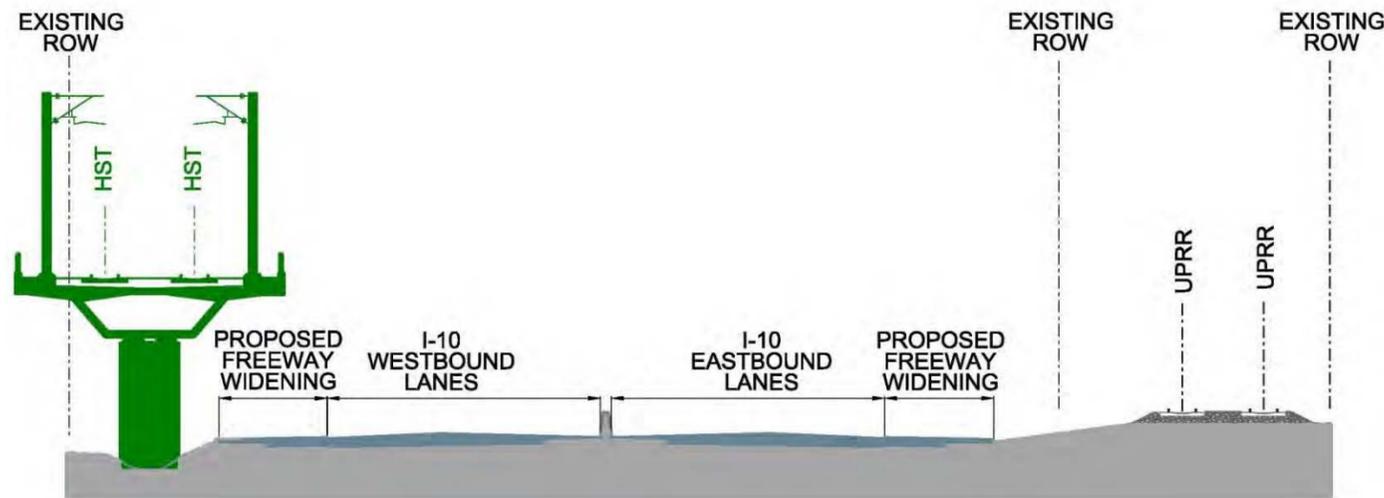
Figure 3-34: UPRR Corridor in Fontana



As the HST alignment passes the Colton Yard, it needs to turn 90 degrees to be oriented to the south going into Riverside. This is done with a sweeping curve that affects a local cement processing facility, and potentially affects habitat for the endangered Delhi Sands flower-loving fly. The S2-A2 alignment joins with the S2-A1 and S2-A3 alignments in the City of Grand Terrace just north of the San Bernardino/Riverside county line before the alignments diverge again into the three alignments in Riverside.

S2-A3: I-10 Corridor through Riverside and South along the I-215. This alignment alternative follows the I-10 transportation corridor on the north side of the freeway from Ontario International Airport to approximately Pepper Avenue in Colton, through the cities of Ontario, Fontana, and Rialto. Figure 3-35 illustrates a conceptual cross section of this alignment. Near Pepper Avenue, the HST alignment turns south with a curve similar to S2-A2, passing through the city of Grand Terrace and entering Riverside on one of three alignments described below as A3.1, A3.2, and A3.3.

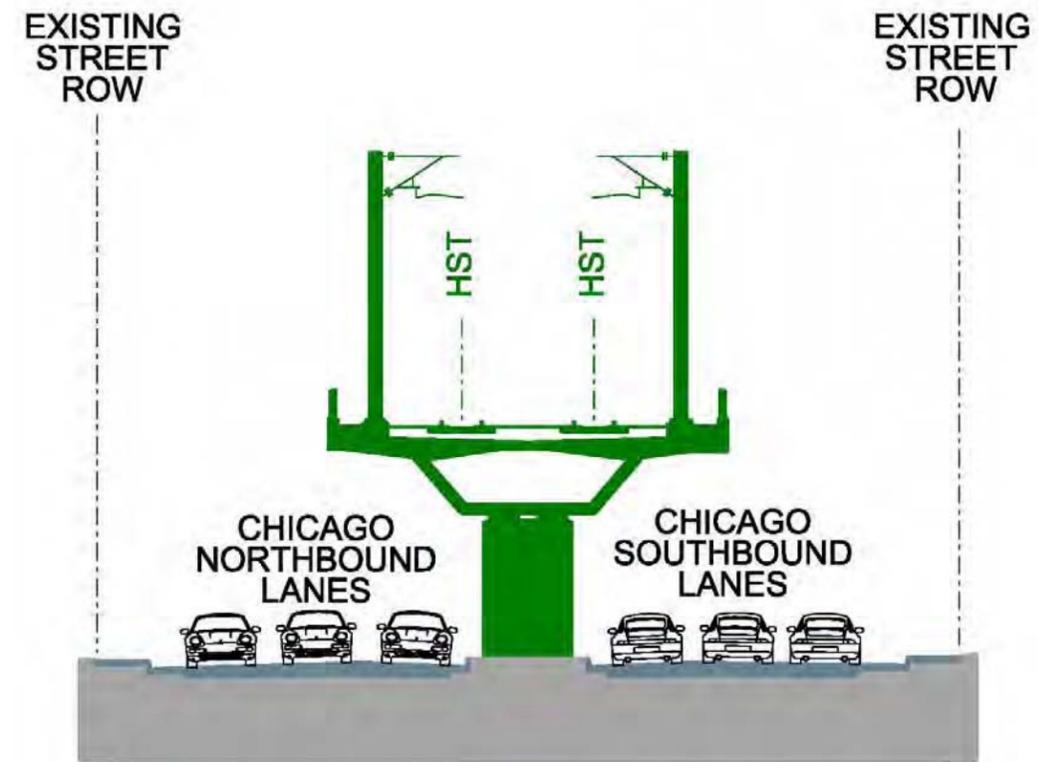
Figure 3-35: I-10 Alternative between Ontario and Colton



East of Ontario, there were originally (during scoping) two options to get to the I-215 corridor. These were the UPRR corridor to Colton (the 2005 Program Alignment) and the Metrolink corridor to San Bernardino as discussed above. It was suggested by RCTC that an additional alternative (S2-A3) along I-10 from Ontario to Colton with a connection to I-215 be considered. SANBAG has plans to widen this section of I-10 to provide HOV lanes, which limits the available space within the freeway right-of-way for HST. Further discussions with SANBAG and Caltrans are needed to determine the feasibility of accommodating both HST and the proposed freeway widening within the I-10 corridor. Similar to S2-A2, the vertical alignment for HST would need to be approximately 55 to 60 feet above-grade to clear the numerous cross streets that go over the railroad and the freeway in this corridor.

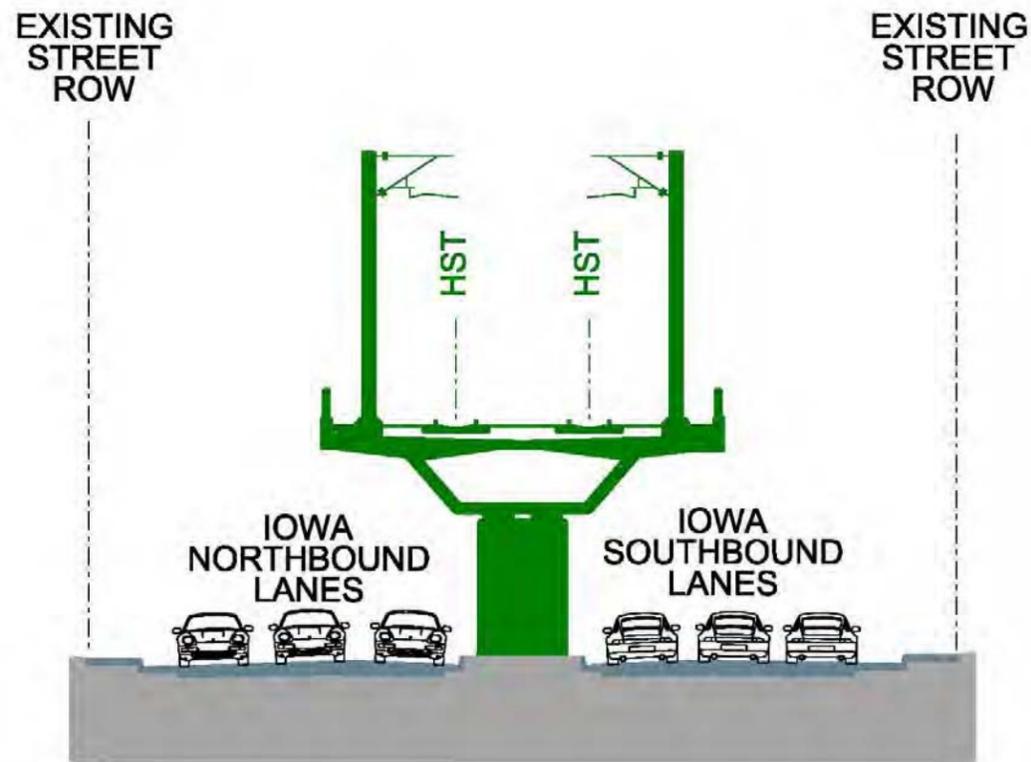
Alternative Alignments through Riverside – Three alignments through Riverside are being evaluated. These alignments can be “mixed and matched” with any of the alignment options to the north (S2-A1, A2, and A3). All of these design options connect to the I-215 transportation corridor south of Riverside.

Figure 3-36: HST Alternative on Chicago Avenue



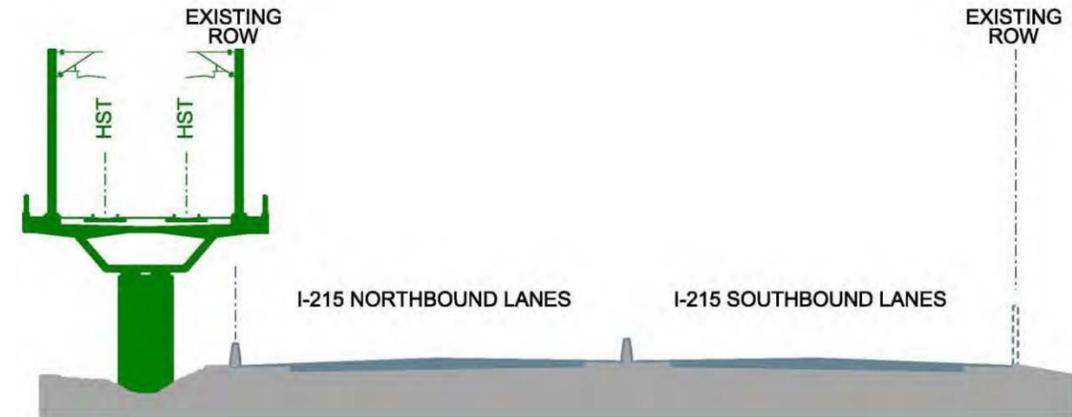
I-215 through Riverside via Chicago Avenue - Alignments S2-A1.1, S2-A2.1, and S2-A3.1 utilize an alignment that generally follows I-215 to Chicago Avenue to I-215 through the city of Riverside. This is an above-grade alignment transitioning to a below-grade alignment north of SR 60 because of topography that would require excessive grades to be able to follow the I-215 corridor. Figure 3-36 shows the above-grade configuration for the HST on Chicago Avenue. Figure 3-38 shows the above-grade configuration adjacent to I-215 north of Martin Luther King Boulevard near UC-Riverside. South of SR 60, the alignment remains below-grade for approximately 6 miles to a point approximately 2,500 feet north of Van Buren Boulevard. At that point the alignment transitions to above-grade for approximately 3 miles to accommodate the March ARB Station Option. Neither of the Riverside Station options (e.g., Martin Luther King Boulevard option or Watkins Drive) can be accommodated on this alignment because there is not sufficient tangent length to provide the 6,000-foot tangent required for a station.

Figure 3-37: HST Alternative on Iowa Avenue



I-215 through Riverside via Iowa Avenue - Alignments S2-A1.2, S2-A2.2, and S2-A3.2 utilize an alignment that generally follows I-215 to Iowa Avenue to I-215 through the City of Riverside. Figure 3-37 shows the HST configuration on Iowa Avenue. This is also an above-grade alignment transitioning to a below-grade alignment south of Martin Luther King Boulevard (Figure 3-38). The alignment remains below-grade for approximately 6 miles to a point approximately 3,500 feet north of Van Buren Boulevard. The alignment then proceeds south at-grade adjacent to I-215 and does not accommodate a station at March ARB. Within Riverside only the Riverside Station–Martin Luther King Boulevard option can be accommodated on this alignment.

Figure 3-38: I-215 near UC-Riverside



I-215 through Riverside via UC-Riverside - Alignments S2-A1.3, S2-A2.3, and S2-A3.3 follow the UPRR to Colton, then turn south and follow the BNSF to March ARB. This is an above-grade alignment until approximately Broadbent Drive, where it transitions to a below-grade alignment. It remains below-grade for approximately 6 miles to a point approximately 3,500 feet north of Van Buren Boulevard. The alignment then proceeds south at-grade and adjacent to I-215 and does not accommodate a station at March ARB. Only the Riverside Station–Watkins Drive option can be accommodated on this alignment in Riverside.

Figure 3-39 shows the area adjacent to March ARB where the Perris Valley line passes through.

Figure 3-39: I-215 at Van Buren Boulevard



I-215 south from Moreno Valley to Murrieta/Temecula

The three alignments through Riverside all emerge from a below-grade configuration near Alessandro Boulevard and become one alignment going to the south. The alignment would be in a below-grade (trench) condition past the northern end of the runways for March ARB, passing under Cactus Avenue and Van Buren Avenue before transitioning to an aerial configuration south of Van Buren. Figure 3-40 shows the trench configuration north of Van Buren Boulevard. The County of Riverside is planning a project to reconstruct the I-215 and Van Buren interchange, which will include a new structure carrying Van Buren over the existing railroad tracks. RCTC is planning the Perris Valley Line Metrolink extension, which would upgrade the existing tracks from Moreno Valley to Perris. RCTC also has plans to widen I-215 in this area. The HST alignment is envisioned to be on the west side of the proposed Metrolink tracks as it emerges from the trench configuration and transitions to an aerial configuration. Figure 3-41 shows the aerial configuration near Harley Knox Boulevard.

Figure 3-40: I-215 in Moreno Valley North of Van Buren Boulevard

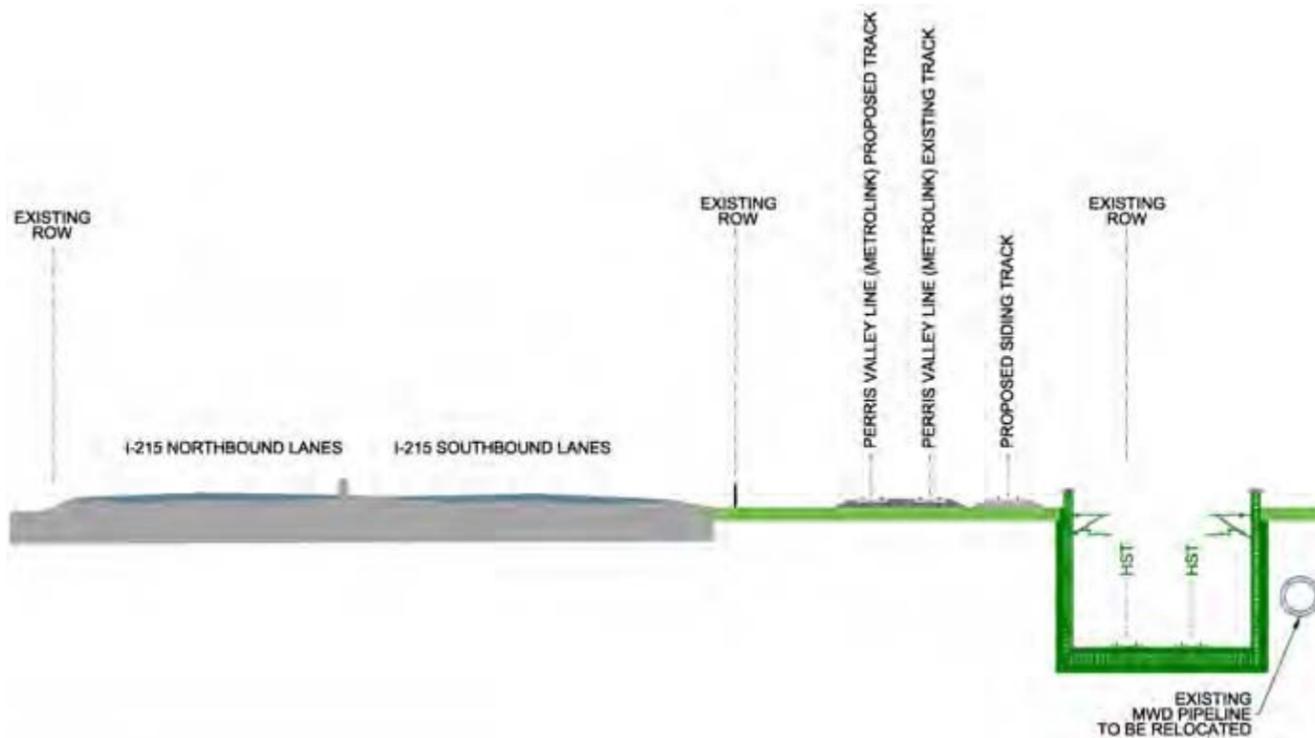
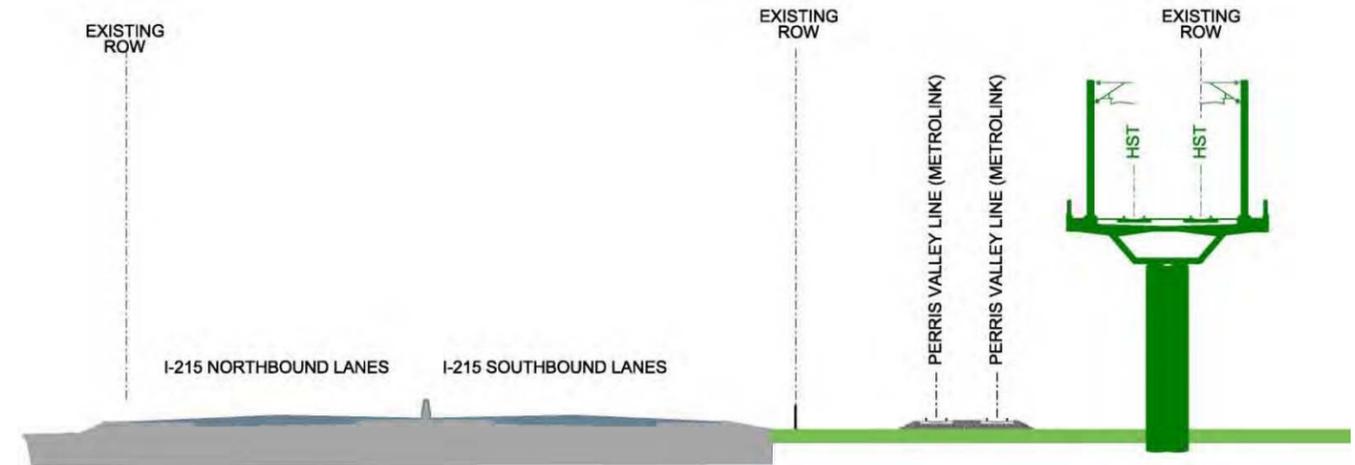


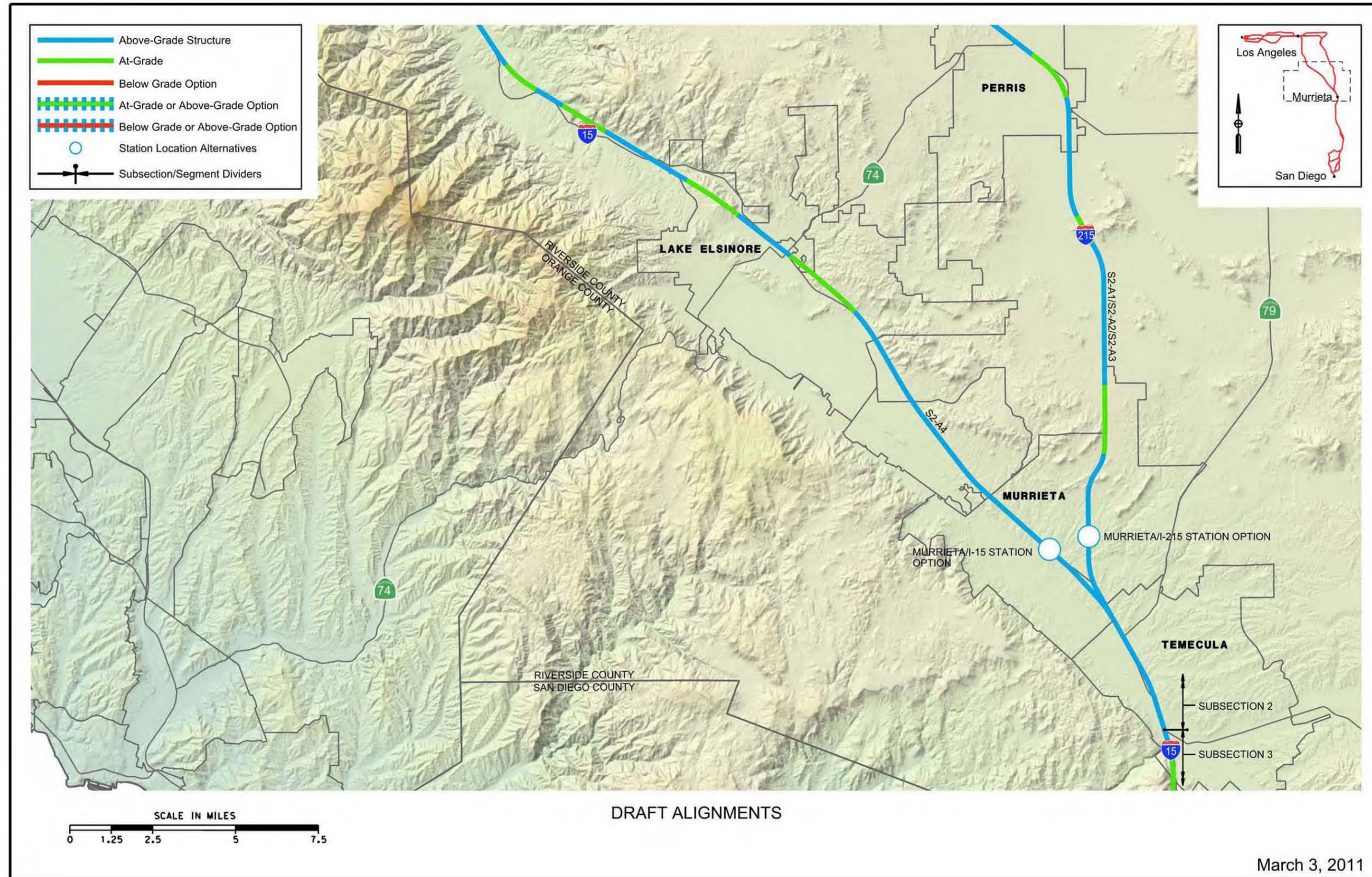
Figure 3-41: I-215 near Harley Knox Boulevard



The proposed March ARB Station would be located near Harley Knox Boulevard, according to discussions in December 2010 with March ARB and Riverside County Airport Land Use Commission officials. This places the station within a compatible zone in accordance with the March ARB/Inland Port Airport Joint Land Use Study. Any farther north would place the station within an incompatible zone, which would require an exception that would be difficult to obtain. The March ARB Station is envisioned to be aerial, approximately 60 feet above-grade to clear Harley Knox Boulevard and Cajalco Expressway to the south. South of Cajalco Expressway the alignment transitions downward to be at-grade underneath Placentia Avenue, which is on an embankment. In this area the alignment passes over an active existing railroad spur and is on the west side of the railroad tracks south of the spur. Further coordination with RCTC is required to determine the need for relocation of the proposed Metrolink tracks within the railroad ROW.

South of Placentia Avenue the alignment swings to the west on an alignment suggested by the City of Perris. At previous TWG meetings two alignments were shown that follow the two transportation corridors (I-215 and the railroad) through Perris. These two existing transportation corridors both have tight curves in their alignments, and the use of larger radii curves for HST would have an impact on the community. The City of Perris suggested an alignment that follows I-215 south of Perris, but deviates to the northwest before curving back to rejoin the railroad alignment near Placentia Avenue. This alignment provides appropriate curvature for HST. Because of the topography of the area, the HST alignment could be at-grade or below-grade in a cut section in this area before becoming aerial to go over the railroad tracks and rejoin I-215 near D Street as it heads south. The alignment would continue in an aerial configuration along I-215, passing over Perris Boulevard and the Fourth Street interchange, which is currently being reconstructed. South of the San Jacinto River the alignment crosses over I-215 to be on the east side of the freeway. The alignment continues above-grade to Murrieta (Figure 3-42). The Murrieta I-215 Station is south of Los Alamos Road.

Figure 3-42: Alternative Alignments and Station Options – Subsection 2 (North Riverside County to Murrieta/Temecula)



I-15 Alignment Alternatives

The I-15 alignment alternatives travel through the cities of Ontario, Eastvale, Norco, Corona, Lake Elsinore, Murrieta, and unincorporated San Bernardino and Riverside Counties.

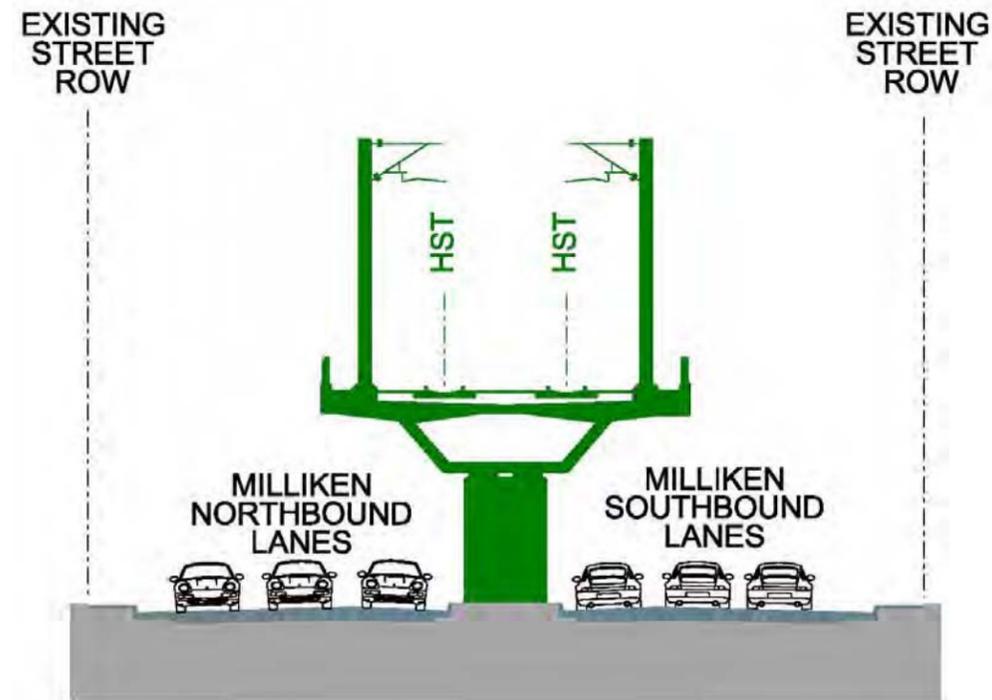
S2-A4: I-15 – this alignment alternative runs southeast from Ontario International Airport to I-15 and then extends south along I-15 to Murrieta. There are two design options within this alignment alternative providing a connection with I-15. One option is the South Milliken Ave/Hamner Avenue arterial alignment and the other is I-15. Both design options merge into one alignment south of the Santa Ana River in the community of Norco.

Milliken/Hamner to Corona (S2-A4.1) – This alignment is located on the west side of I-15 and occupies the median of Milliken/Hamner Avenue from approximately Jurupa Avenue to Norco and then joins the I-15 transportation corridor south of the Santa Ana River. Figure 3-43 shows the above-grade alignment proposed along this corridor. Milliken Avenue and Hamner Avenue either exist as six-lane arterials or are planned to be six-lane arterials. Figure 3-44 shows the Milliken/Hammer corridor looking north as it exists today. East of Ontario International Airport the alignment would need to be below-grade to clear the runway protection zones that are planned to be expanded to the east if the runways are extended to the east. The alignment would transition from below-grade to above-grade near Jurupa Avenue and be above-grade in the median of Milliken and Hamner south of Jurupa to the Santa Ana River. The adjacent land uses are industrial and commercial in the north, but become residential within the newly incorporated Community of Eastvale, north of the Santa Ana River.

Figure 3-44: Milliken/Hamner Corridor, Looking North in Ontario

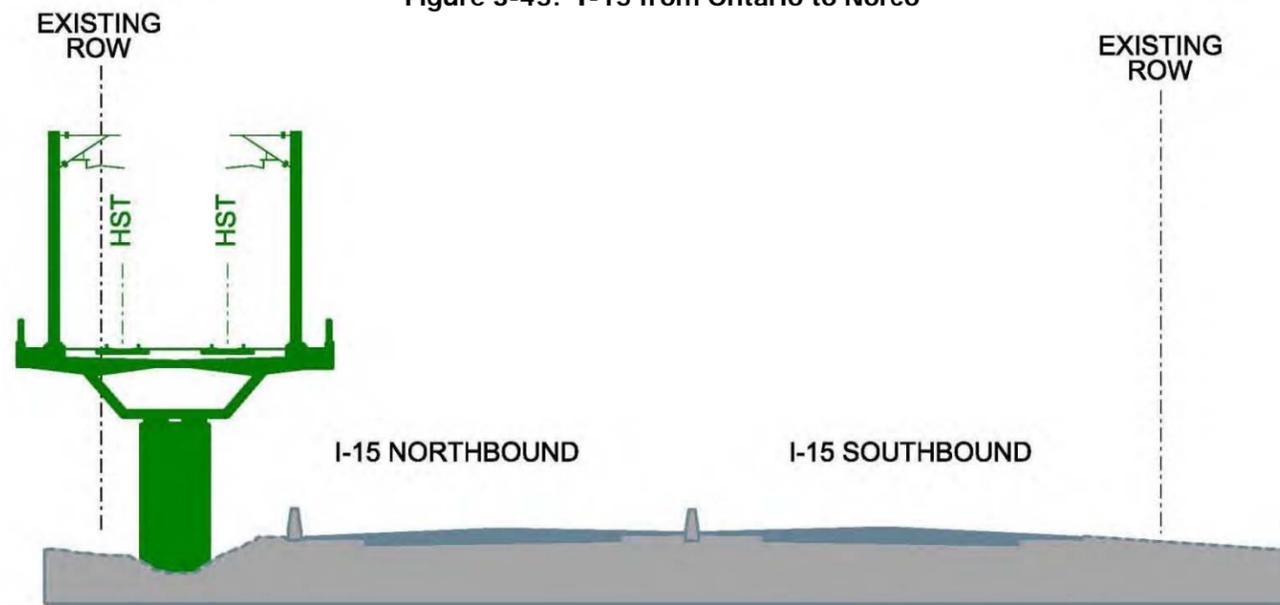


Figure 3-43: Milliken Avenue between Ontario and Eastvale



I-15 to Corona (S2-A4.2) – This alignment extends east from Ontario International Airport, crosses over I-15 and then follows the I-15 transportation corridor south along the east side of the corridor ROW. Figure 3-45 shows the cross section of I-15 with the above-grade guideway in the east portion of the ROW. East of Ontario International Airport the alignment would be in a below-grade configuration to clear the runway protection zones that are planned to be expanded to the east if the runways are extended to the east. The alignment transitions to above-grade on the east side of I-15 and passes over the east side of the multilevel I-15/SR 60 interchange.

Figure 3-45: I-15 from Ontario to Norco



I-15 Corridor South from Norco to Murrieta /Temecula

There is only one alignment alternative from Norco to Murrieta/Temecula along the I-15 corridor. The alignment is primary above-grade and located on the east side of the I-15 ROW up to the I-15/SR 91 interchange. Figure 3-46 shows the configuration of HST relative to I-15 just north of SR 91. South of SR 91 the alignment diverges from the I-15 ROW travels overland for approximately 5.7 miles, and rejoins the east ROW of I-15 near Weirick Road. This divergence from I-15 was suggested by the City of Corona because the corresponding section of I-15 has numerous curves and is planned for major widening that will consume virtually the entire freeway right-of-way. Where it has diverged from I-15, the HST alignment passes through land currently occupied by sand and gravel mining operations. The Corona Station Option is along this alignment just north of Temescal Canyon Road. Figure 3-47 shows the station area near Temescal Canyon Road.

The alignment then travels along the east side of I-15 for approximately two miles before diverging from the I-15 ROW. Figure 3-48 shows the east side alignment configuration south of Corona. The alignment then generally follows I-15, sometimes within the ROW and sometimes adjacent to it, for approximately 20 miles. The alignment through that area is a combination of above-grade and at-grade, with deep-cut areas. The Murrieta I-15 Station is above-grade near Los Alamos Road. At the May 2010 TWG meeting, the I-15 alignment in Murrieta was shown coming off of the freeway and down Madison Street in order to achieve the 6,000 foot horizontal tangent required for a station and get the station placed immediately to the west of the wye where the I-15 and I-215 freeways connect. A focused meeting with the City of Murrieta in July 2010 resulted in a desire to shift the alignment closer to I-15 and move the station to the north near Los Alamos Road. These changes have been made and are now shown on the conceptual engineering plans in Appendix A.

Figure 3-46: I-15 Just North of SR 91

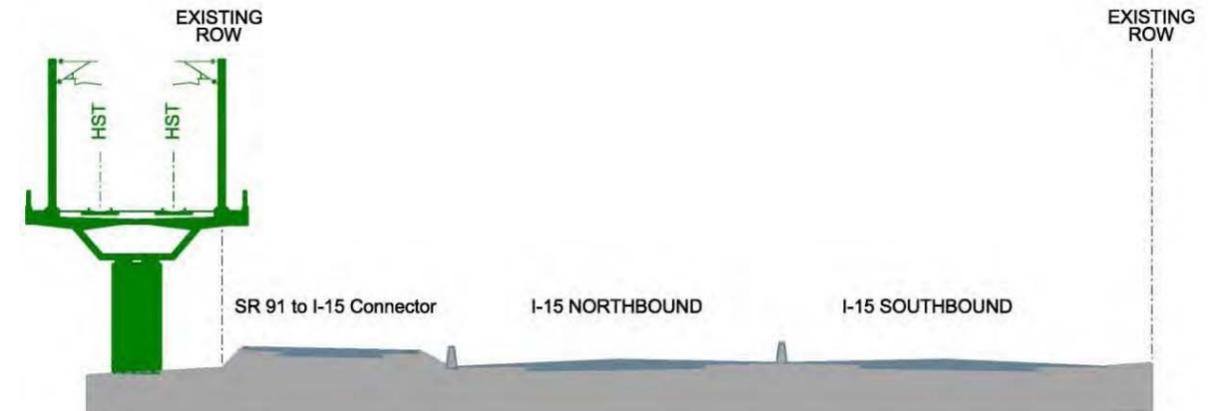
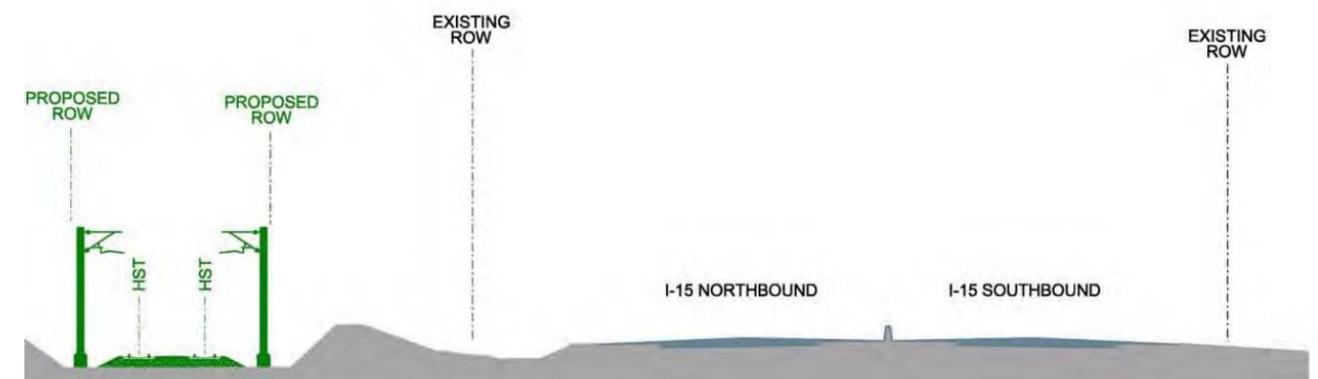


Figure 3-47: I-15 South of Corona at Temescal Canyon Road



Figure 3-48: At-Grade Guideway along I-15 Corridor



3.3.5 Murrieta/Temecula to San Diego Subsection (S3)

The Murrieta/Temecula to San Diego subsection extends from the confluence of I-15 and I-215 in Murrieta/Temecula to Downtown San Diego. This subsection has five alternative alignments with several design options. The alignments range from approximately 51 miles to 67 miles in length, depending upon the transportation corridor evaluated to reach San Diego. All alternative alignments utilize the I-15 transportation corridor from Murrieta/Temecula to north San Diego County. From there several alternative alignments extend west to the Los Angeles–San Diego–San Luis Obispo Rail (LOSSAN) corridor at either of the following: SR 56, the Carroll Canyon/Rose Canyon/University City area, SR 163 or I-8/Mission Valley. The HST alignments then follow the LOSSAN corridor south to Downtown San Diego. A variation is an alternative that follows I-15 to terminate at Qualcomm Stadium. Figure 3-49 illustrates the northern half and Figure 3-55 illustrates the southern half of Subsection 3 (S3). The alternative alignments within Subsection 3 are listed in the box below. Detailed descriptions follow.

Murrieta/Temecula to San Diego

Murrieta/Temecula to San Diego International Airport (SDIA) via SR 56 and LOSSAN Corridor (Alternative S3-A1)

Murrieta/Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor (Alternative S3-A2)

The S3-A2 alignment has three approach alignment alternatives:

- S3-A2.1 Carroll Canyon
- S3-A2.2 University City North
- S3-A2.3 Rose Canyon

Murrieta/Temecula to SDIA via SR 163 and I-8 (Alternative S3-A3)

Murrieta/Temecula to SDIA via I-15 and I-8 (Alternative S3-A4)

Murrieta/Temecula to Qualcomm Stadium Terminus via I-15 (Alternative S3-A5)

For all alternatives in this subsection there are sub-alignment alternatives to address station options in Escondido and Downtown San Diego:

- S3-B1 – Escondido Station Options (from Country Club Lane to Via Rancho Parkway):
 - S3-B1.1 Escondido Station I-15 Option
 - S3-B1.2 Escondido Station Centre City Parkway Option (below-grade)
 - S3-B1.3 Escondido Station Centre City Parkway Option (above-grade)
- S3-B2 – Downtown San Diego Station Options (SDIA to Santa Fe Depot):
 - S3-B2.1 Downtown San Diego Station Option (SDIA to Santa Fe Depot) (above-grade)
 - S3-B2.2 Downtown San Diego Station Option (SDIA to Santa Fe Depot) (below-grade)

The potential HST stations in Subsection 3 are the following:

Escondido Station Alternative

This alternative has two station options. One of these will be selected as the preferred HST station to be carried forward for further study.

- Escondido Station I-15 Option
- Escondido Station Centre City Parkway Option

University City Station Alternative

This alternative has two station options. One of these may be selected as a preferred HST station:

- University City Station North Option
- University City Station Rose Canyon Option

San Diego Station Alternative

This alternative has three station options. One of these will be selected as the preferred station alternative to be carried forward for further study:

- Qualcomm Stadium Terminus Station Option
- San Diego International Airport Station Option
- Downtown San Diego Station Option

Alignment Alternatives

Common Alignment: Murrieta/Temecula to SR 56

From Murrieta/Temecula to SR 56, the LA–SD HST alignment has only one alternative alignment that generally follows the I-15 corridor (Figure 3-49). This common portion of the Subsection 3 alignment travels through the cities of Temecula, Escondido, Poway, and San Diego and unincorporated areas in Riverside and San Diego counties. All of the Murrieta/Temecula to San Diego alternatives utilize this common alignment from Murrieta to the intersection of I-15 and SR 56 near Poway. The alignment is above-grade and at-grade for the most part, except for a below-grade portion in north San Diego County near Rainbow and through portions of mountainous terrain. Figure 3-50 shows the below-grade alignment on the east side of I-15 at Rainbow. From the Murrieta/Temecula Station, the HST alignment would extend south traversing the City of Temecula. South of Temecula, the HST alignment follows the I-15 transportation corridor to the extent that the freeway corridor, with horizontal design speeds of less than 85 mph, can accommodate the HST with a design speed over 100 mph. In areas where the I-15 curves are tight and would restrict speeds the alignment often moves away from the I-15 ROW.

Beginning at the boundary with Subsection 2 in Temecula, the alignment is on the west side of I-15 heading south toward the Riverside/San Diego county line. The alignment transitions to the east side of the I-15 corridor near the Community of Rainbow, and then generally follows the I-15 corridor to SR 76. North of SR 76, the HST alignment uses larger curve radii than I-15, which pulls the HST alignment somewhat away from the freeway near the Mission Road interchange. South of SR 76, the alignment enters a tunnel through a hill that is too steep for an above-grade alignment. The alignment emerges from the tunnel north of Gopher Canyon Road and follows the west side of the freeway to the northern limits of Escondido. Figure 3-51 shows the alignment configuration along I-15 between Gopher Canyon and Country Club Lane outside of the I-15 ROW. Figure 3-52 shows the above-grade configuration adjacent to I-15 in Escondido between Country Club and Lake Hodges within the I-15 ROW.

Figure 3-50: Below-Grade Alignment at Rainbow

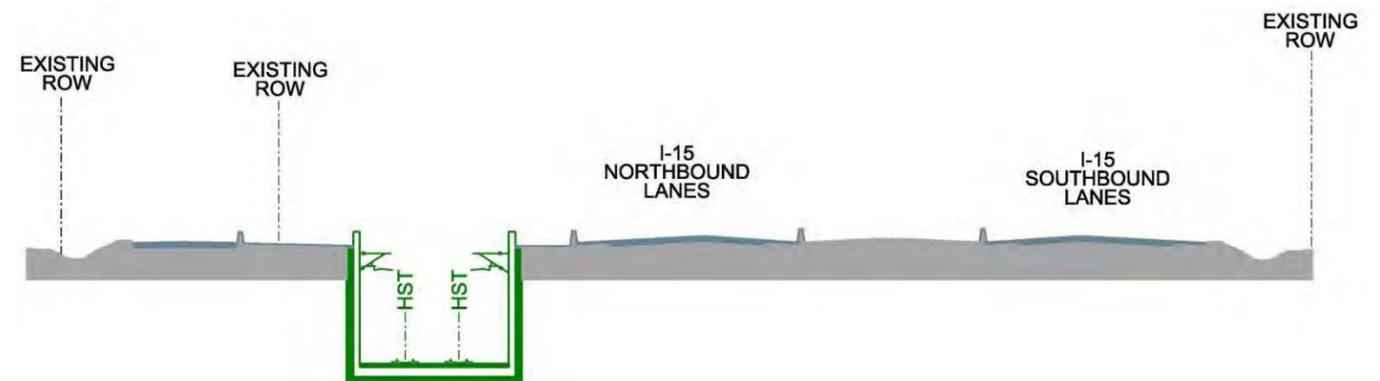


Figure 3-49: Alignments and Station Alternatives – Subsection 3 (Murrieta/Temecula to North San Diego County)

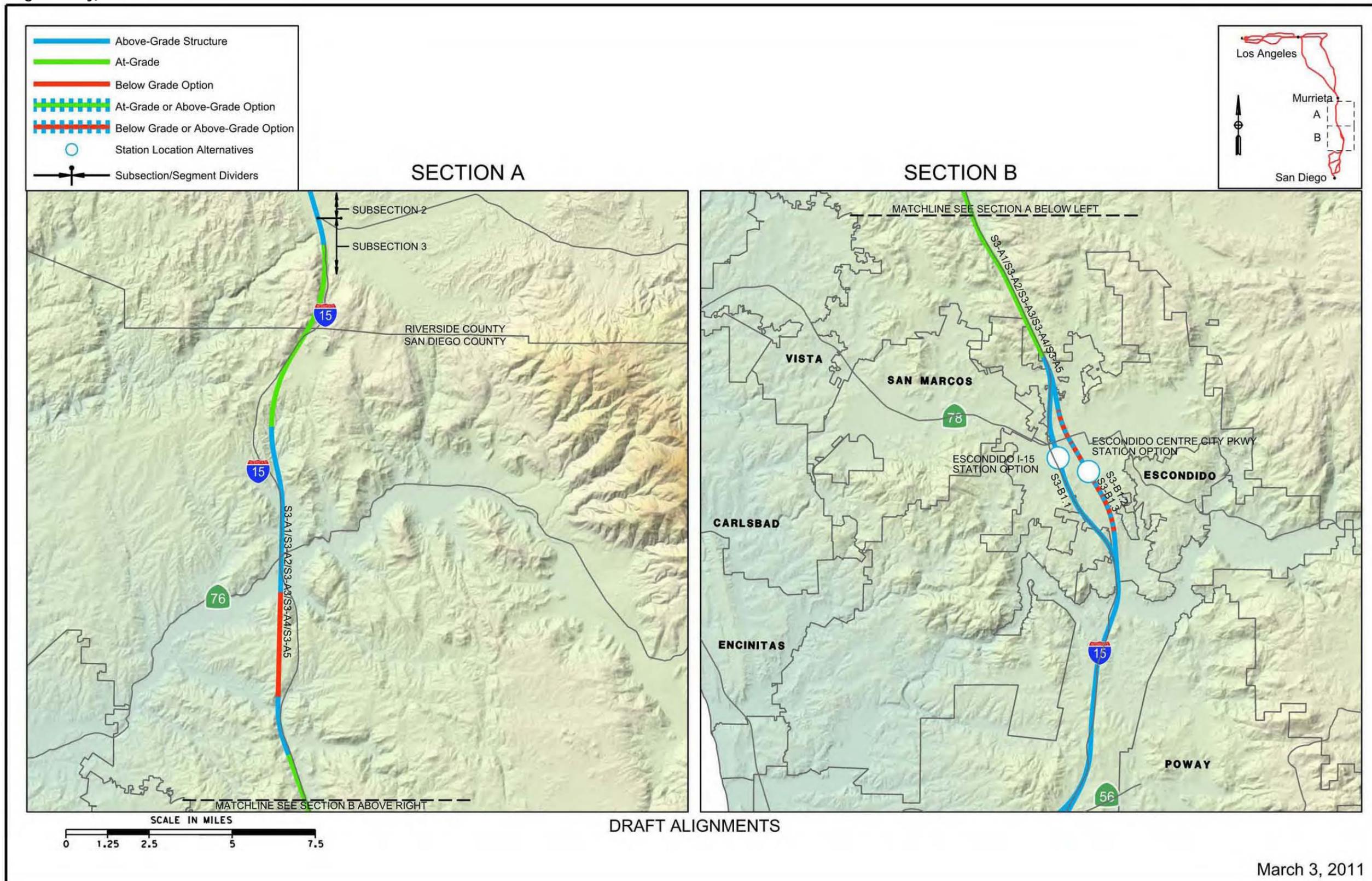


Figure 3-51: I-15 between Gopher Canyon and Country Club Lane

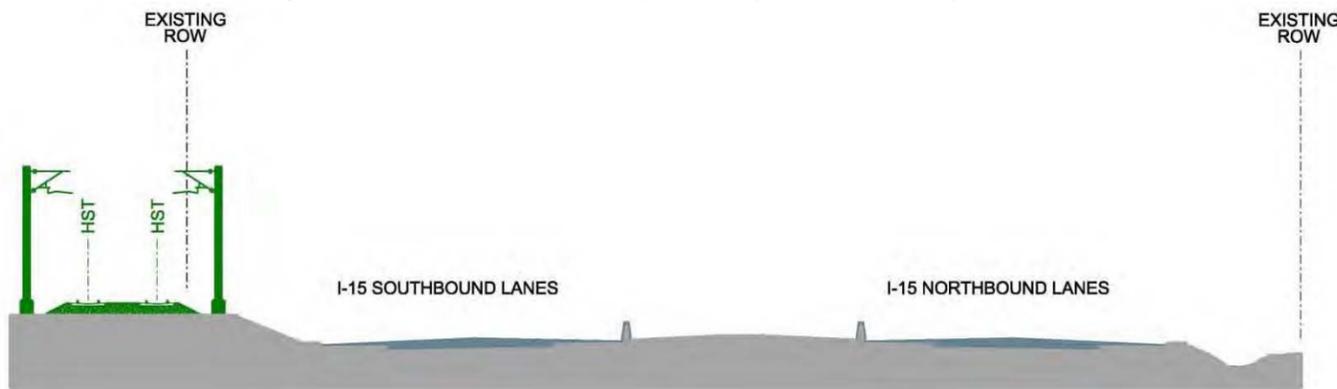
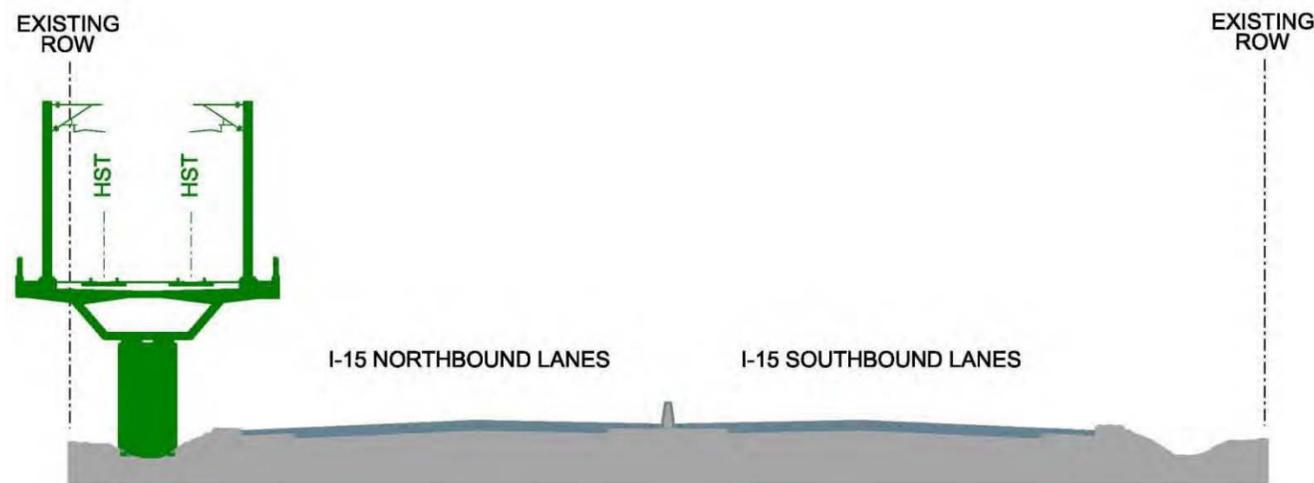


Figure 3-52: I-15 at Escondido – Country Club Lane to Lake Hodges



S3-B1: Escondido Design Options

Two alignment and station options were developed in Escondido – one that followed I-15 with a station just south of SR 78 (S3-B1.1) and one that generally followed Centre City Parkway with a station east of the Escondido Transit Center. For the Centre City Parkway alignment, there are two profile options – one above-grade (S3-B1.2) and one below-grade (S3-B1.3). One of the primary objectives is to connect with the existing Sprinter rail line that connects Escondido with Oceanside. The eastern terminus of the Sprinter line is the Escondido Transit Center, but there are plans to extend the Sprinter east and south to the Westfield North County Shopping Mall.

The I-15 alternative generally follows the east side of I-15 through Escondido. At the station location near SR 78, the requirement to have a 6,000-foot-long tangent section at the station forces the alignment to be farther east of I-15. At the May 2010 TWG meeting, city staff asked if the alignment and station could be closer to the freeway to reduce impacts on an existing ice rink facility. An alternative to do that was developed, but it was determined to be more expensive and undesirable. This analysis was discussed again with city staff, who expressed acceptance of the original design from May 2010 that had the standard 6,000-foot tangent at the station. This alignment and station location are now reflected in the drawings in Appendix A. The station location being proposed is directly above the Sprinter tracks and within approximately 0.25 mile of the Sprinter terminus at the Escondido Transit Center. Further

analysis and discussion with city staff are needed to determine the best approach to improving the connectivity between the HST and Sprinter.

Figure 3-53 shows the Sprinter Transit line travelling under I-15 approaching the existing Escondido Transit Center.

Figure 3-53: Sprinter under I-15, Looking South



South of Escondido, the alignment follows the I-15 transportation corridor, transitioning back and forth between the east and west sides to maintain a high-speed alignment, to the SR 56 corridor where alternative S3-A1 extends to the coast and the other alignments extend farther down I-15.

I-15 Managed Lanes

Along the I-15 corridor from Escondido to Mira Mesa, Caltrans has recently completed construction of a Managed Lanes facility in the median of the freeway. The basic cross section of I-15 is now 14 lanes wide. There are five general use lanes in each direction, and four managed lanes in the median. Figure 3-54 shows the HST on the east side of I-15 south of Lake Hodges where there are managed lanes in the I-15 ROW. These lanes are reversible, and there is a movable barrier in the middle that can provide up to four lanes in either direction. The operational plan calls for three southbound lanes and one northbound lane during the morning peak hours, and three northbound lanes and one southbound lane during the evening peak hours. During emergencies, the managed lanes could operate with all four lanes in one direction if desired. There are ingress/egress points along the route on both sides of the freeway. The result of this for HST is that there is no longer a continuous median barrier that could be used for HST guideway columns. A more likely location for HST in this corridor would be on the side of the freeway.

Figure 3-55 shows the alignments in this subsection south of Escondido. Figure 3-56 shows the managed lanes looking south from Carmel Mountain Road.

The design shown in Appendix A depicts an alignment with a design speed of 150 mph. It is generally in an aerial configuration on the side of the freeway, because it is difficult to try to locate columns within the freeway cross section. A slower design speed would allow the alignment to follow the freeway closer and reduce impacts. A higher design speed would likely require tunneling. Further coordination is needed with Caltrans and the City of San Diego in this area.

Figure 3-54: I-15 South of Lake Hodges – Managed Lanes

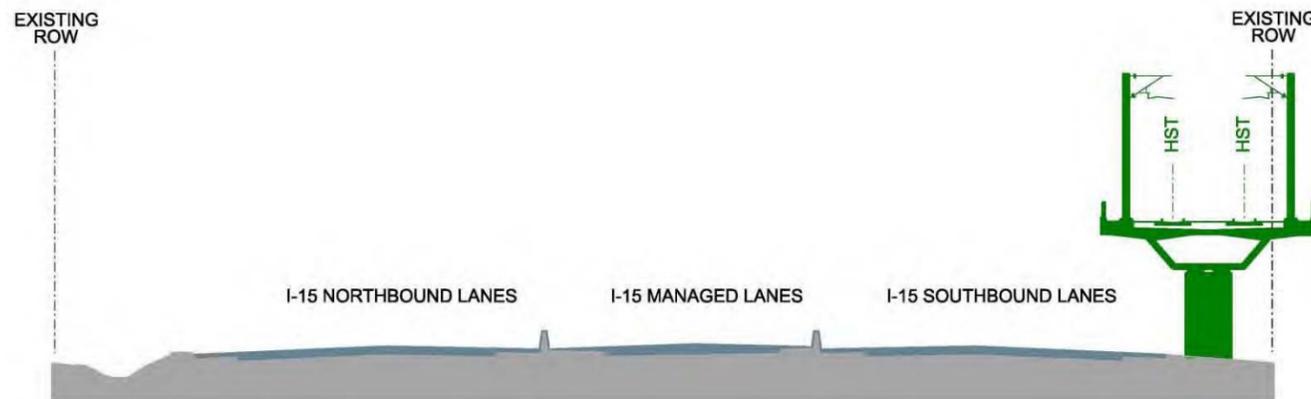


Figure 3-56: I-15 Managed Lanes – South from Carmel Mountain Road



S3-A1: Murrieta/Temecula to San Diego International Airport via SR 56 and LOSSAN Corridor

This alignment travels through the cities of Temecula, Escondido, Poway, La Jolla, Mission Bay, and San Diego and unincorporated areas in Riverside and San Diego counties. This alignment alternative follows I-15 south from Murrieta/Temecula as previously discussed and turns west onto the SR 56 transportation corridor (Figure 3-52) to reach the Coast; it is for the most part an above-grade configuration. Figure 3-57 shows the conceptual cross section of the alignment on SR 56 between I-15 and I-5. Because the horizontal curvature of SR 56 has a lower design speed than the HST in this segment, the HST alignment moves out of the transportation corridor in the area north and east of Carmel Mountain Road, a distance of approximately 6 miles. From this location, the alignment joins the I-5 corridor.

Figure 3-57: Conceptual Cross-Section of HST Guideway in the SR 56 Corridor

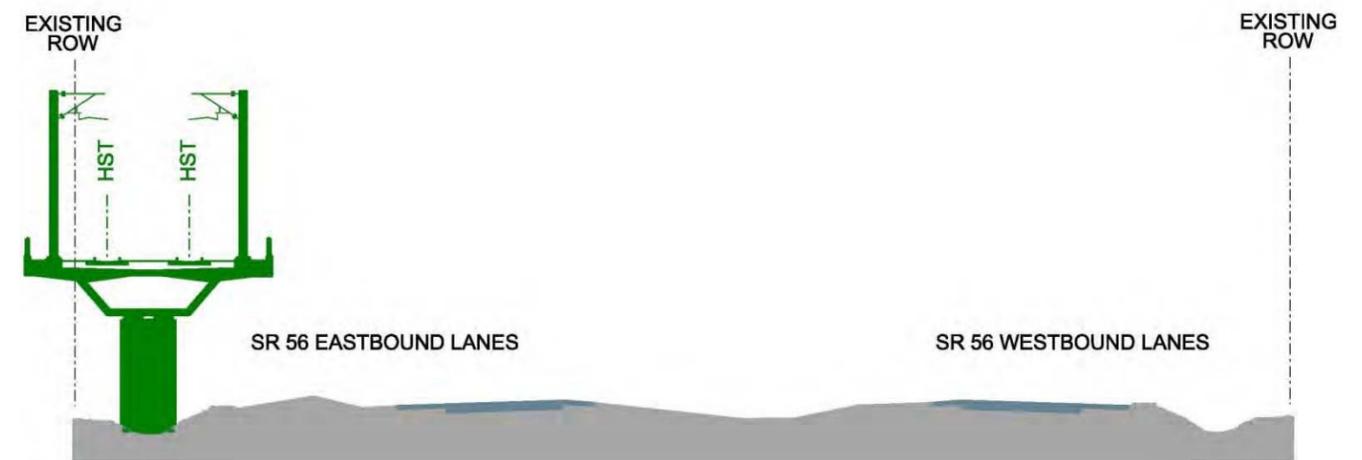
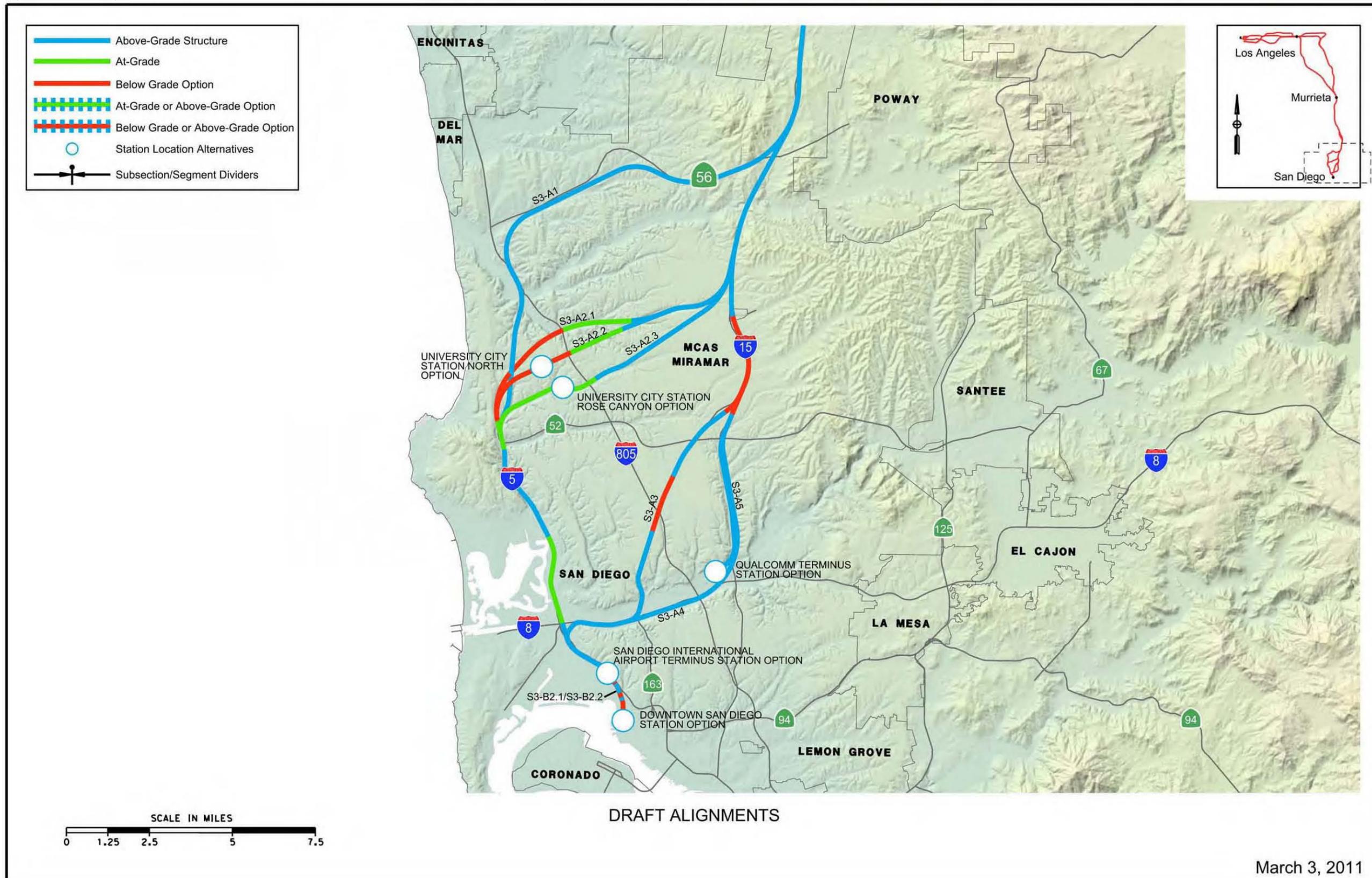


Figure 3-55: Alignment and Station Alternatives - Subsection 3 (North San Diego County to San Diego)



Alignments South of SR 56

I-5/LOSSAN Alignment South of SR 56

South of SR 56, the alignment generally follows the I-5 and LOSSAN transportation corridors to San Diego International Airport in a combination of above-grade and at-grade configurations. Figure 3-58 shows the above-grade configuration on the east side of I-5 south of SR 52. Along the LOSSAN corridor, in the segment between Garnet Avenue/Balboa Avenue in Pacific Beach and just north of I-8, a 3-mile-long at-grade configuration has been identified. Because this section of the LOSSAN corridor is planned to facilitate two tracks for Coaster and Amtrak and two tracks for the proposed Mid-Coast Trolley, a total of six tracks are needed to provide two dedicated tracks for HSTs. Discussions with the San Diego TWG have shown that this is possible, but it would require a realignment of approximately 0.5 mile of the proposed Mid-Coast Trolley alignment and a reduction in the width of a short section of Morena Boulevard. It would also limit the ability of Caltrans to widen I-5 through this area (long-range plans call for an additional lane in each direction). Figure 3-59 illustrates a conceptual design for the at-grade configuration in the LOSSAN corridor; Figure 3-60 shows the existing configuration in the LOSSAN Corridor near Balboa Avenue. In this segment, the alignment passes east of Mission Bay before crossing the San Diego River. South of the river, the alignment passes to the west of Old Town San Diego State Historic Park. Presently under study at the San Diego International Airport is an intermodal transit facility that would accommodate the HST, San Diego Trolley, LOSSAN/Pacific Surfliner/Coaster intercity and commuter rail services, bus transit, and auto access, as well as air connectivity. Three station elevation design options are considered at SDIA (aerial, at-grade, and below-grade) Figure 3-61 is a cross section of I-5, Kettner Boulevard, and the proposed HST station platform at SDIA for the aerial design option. Figure 3-62 shows existing configuration of the HST approach to the future SDIA Intermodal Station. The entire S3-A1 alignment is approximately 67 miles in length.

Figure 3-60: Existing Conditions in LOSSAN Corridor



Figure 3-58: I-5 Above-Grade Configuration South of SR 52

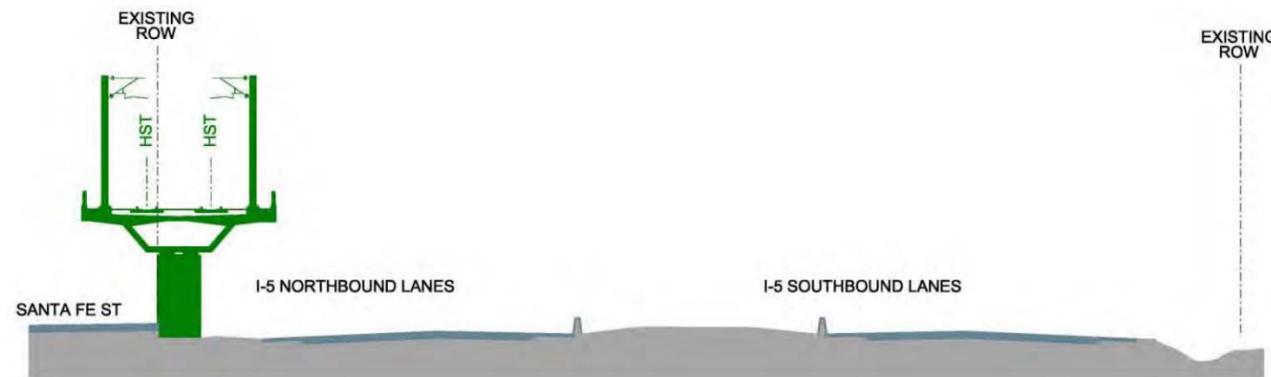


Figure 3-61: HST Platform at SDIA Intermodal Station (Aerial Design Option)

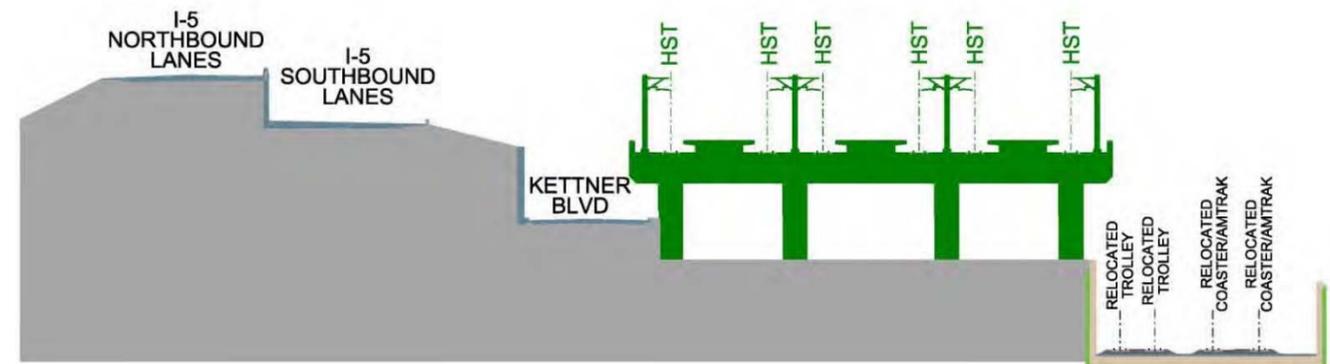


Figure 3-59: HST Alignment in LOSSAN Corridor Adjacent to I-5

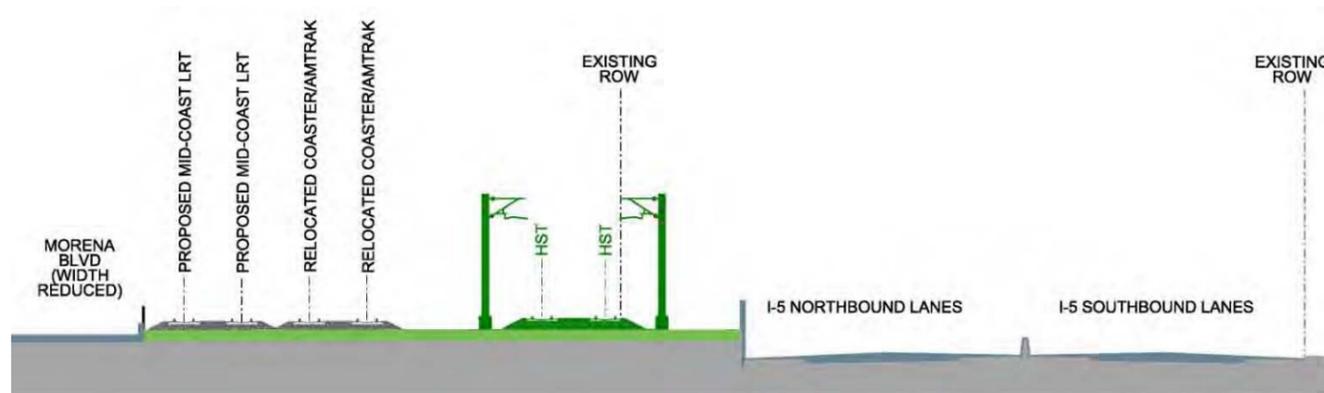
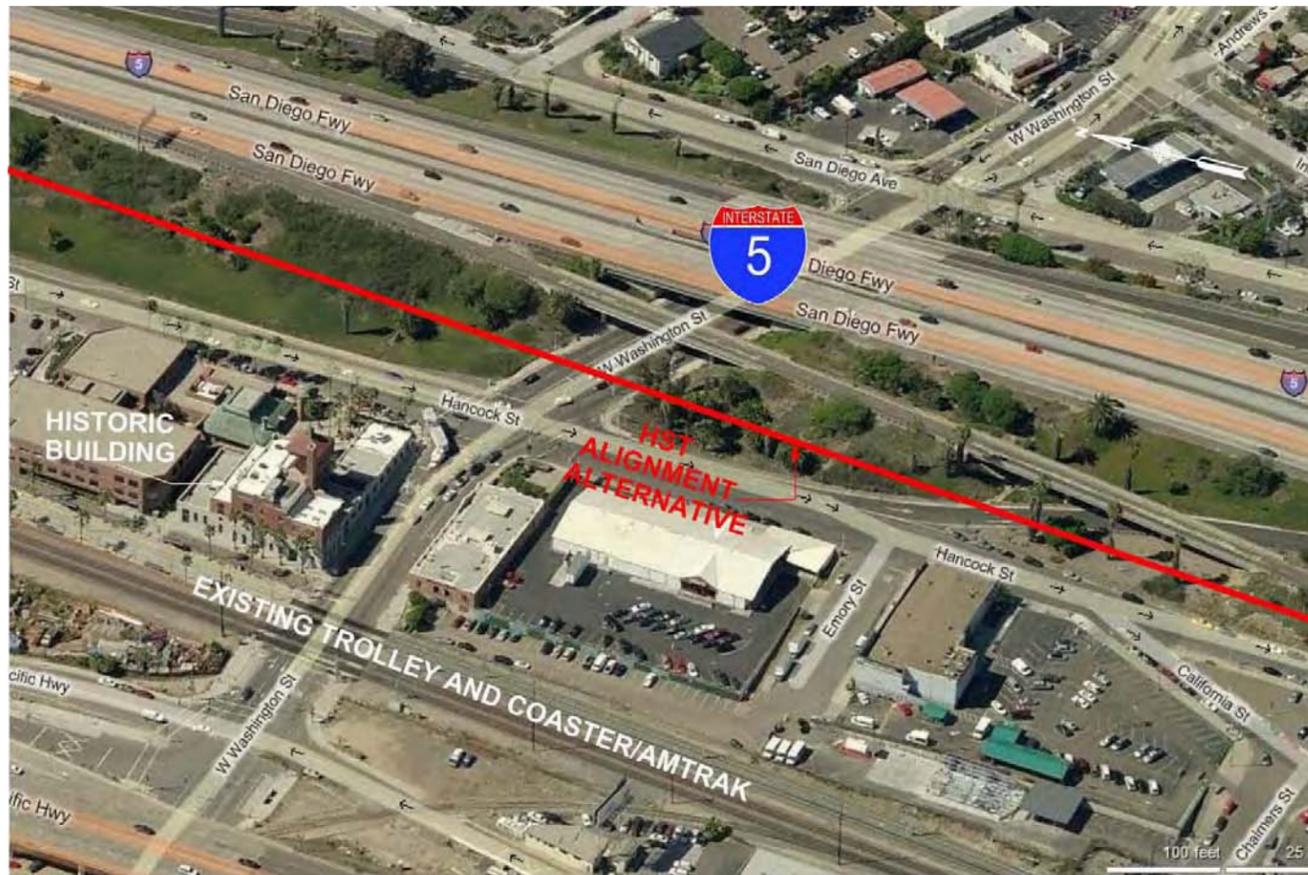
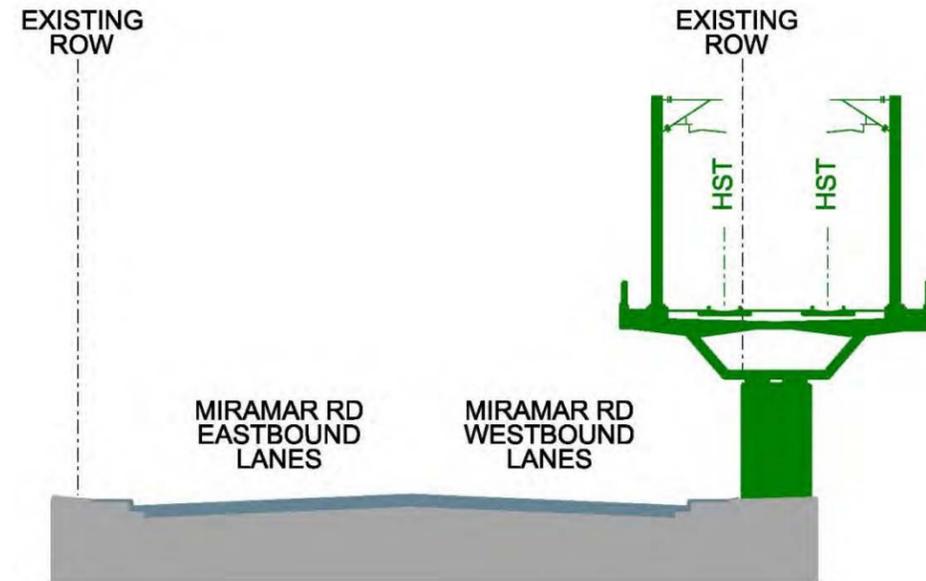


Figure 3-62: HST Approach to SDIA Intermodal Center



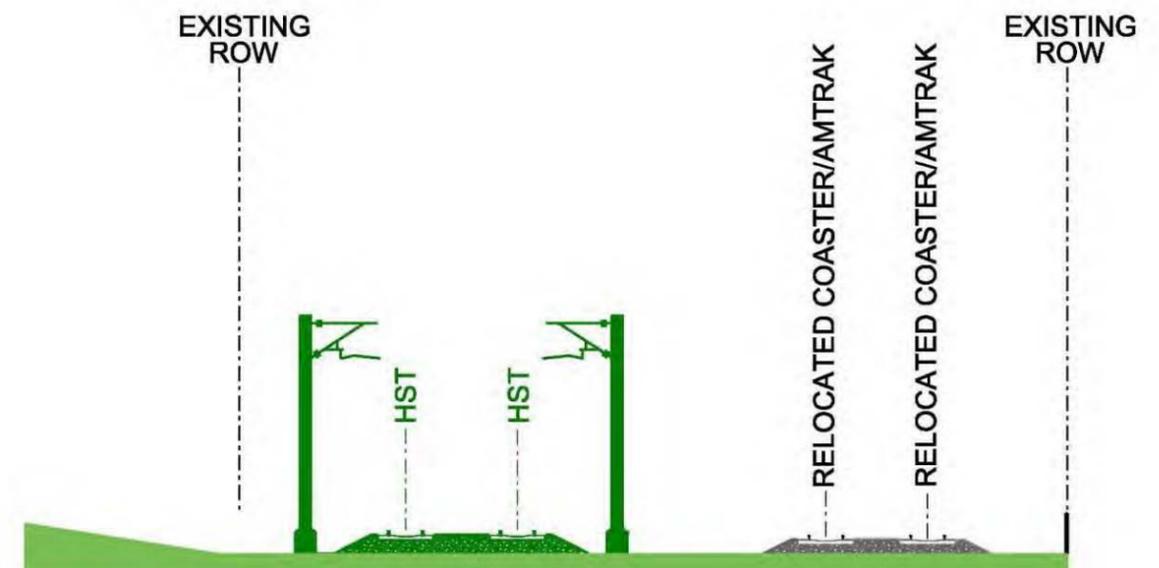
and A2.2. Figure 3-63 shows the above-grade HST in the north edge of the Miramar Road ROW. As the alignment approaches I-805, near Miramar National Cemetery, the alignment joins the existing rail alignment through Rose Canyon and the I-5/LOSSAN Corridor. A station option at University City is being studied for this alignment.

Figure 3-63: HST along Miramar Road



In Rose Canyon, it was determined in discussions with various stakeholders that the alignment would need to closely follow the existing railroad tracks, which are used by freight and the Coaster commuter rail line from San Diego to Oceanside. Figure 3-64 shows the track configuration with the HST and Coaster through Rose Canyon. In addition, there are plans for the Mid-Coast LRT to be developed along the I-5 corridor, from I-8 up to University City. South of SR 52, it was recognized that the HST alignment would need to be on the west side of the Coaster and Mid-Coast LRT tracks. In the Rose Canyon area, however, the HST tracks would need to be on the south side of the existing Coaster tracks. In the area of Gilman Drive, the HST alignment would need to pass over both of the other rail lines to switch from one side to the other. This proved to be feasible from an engineering standpoint, and is presented in Appendix A.

Figure 3-64: HST in Rose Canyon



S3-A2: Murrieta/Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor (Alternative S3-A2)

This alternative travels through the cities of Murrieta, San Marcos, Escondido, Poway, Mira Mesa, Scripps Ranch, Miramar, La Jolla, Mission Bay, and San Diego and unincorporated areas in Riverside and San Diego counties. This alignment follows I-15 from Murrieta/Temecula through Escondido and south, it then turns west at Mira Mesa to follow one of three design option alignments toward the I-5/LOSSAN corridor (Figure 3-55). The alignment alternative consists of three parts starting at Murrieta/Temecula: (1) I-15 as described above as the common alignment, (2) a connection between I-15 and I-5 near University City, with three alignment alternatives, and (3) the coastal alignment portion described previously under I-5/LOSSAN alignment south of SR 56. The three alternative alignments connecting I-15 to I-5 include the following:

Carroll Canyon (S3-A2.1) – This alternative turns west, crosses over the I-15 at approximately Mira Mesa Boulevard, and proceeds west through Carroll Canyon in an above-grade configuration. At I-805, near Carroll Canyon Road, the alignment transitions to a below-grade configuration for approximately 4.2 miles, transitioning to an aerial configuration as it joins the I-5/LOSSAN corridor. This alignment does not provide a University City Station option.

University City North (S3-A2.2) – This alternative also turns west, crosses over the I-15 at approximately Mira Mesa Boulevard, and proceeds west through Carroll Canyon in an above-grade configuration slightly south of the A2.1 alignment. At I-805, just north of Miramar Road, the alignment transitions to a below-grade configuration for approximately 4.3 miles, transitioning to an aerial configuration as it joins the I-5/LOSSAN corridor. A University City Station option is being reviewed in association with this alignment.

Rose Canyon (S3-A2.3) – This alternative also turns west crossing over the I-15 at approximately Mira Mesa Boulevard and proceeds west in an above-grade alignment substantially paralleling Miramar Road to the south of A2.1

At the I-5/SR 52 interchange, the HST alignment needs to pass under SR 52 to avoid a tall structure that would be unacceptable to the local community. The Mid-Coast LRT also needs to fit underneath the five interchange connector structures, and it is proposed to do that with retaining walls and the relocation of the existing multiuse trail that is between the railroad and I-5 in this area. Two options for getting HST through this interchange were developed. One would pass through the end spans of three of the five connector structures, with tie-back retaining walls at the abutments to provide sufficient clearance. The other two connector structures would need to be reconstructed, and the multiuse trail would need to be relocated. The second option would put the HST alignment closer to I-5, essentially behind the abutments of four of the five connector structures and in between two columns of the fifth connector. This option is a more desirable approach because it avoids the need to relocate the multiuse trail; this is presented in Appendix A.

The overall length of this alternative alignment from Murrieta/Temecula to SDIA is approximately 57 to 59 miles, depending on the alignment through the University City area. This alternative alignment either terminates at SDIA or connects to alternative S3-B2 to extend to Downtown San Diego.

S3-A3: Murrieta/Temecula to SDIA via SR 163 and I-8

This alternative travels through the cities of Murrieta, San Marcos, Escondido, Poway, Miramar, and San Diego and unincorporated areas in Riverside and San Diego counties. This alternative follows the I-15 corridor south from Murrieta/Temecula through Escondido and then south past Mira Mesa to SR 163. The alignment alternative then follows SR 163 southwest to I-8. The alignment then follows I-8 towards Mission Hills to connect to an HST station at SDIA. The alignment is approximately 57 miles in length from Murrieta/Temecula to SDIA. Stations along this alternative alignment would be located at Escondido and at SDIA. Figure 3-52 illustrates this alignment alternative.

Traveling south from Murrieta/Temecula the alignment is identical to S3-A2 (described previously) to as far as Mira Mesa. The HST alignment is in an aerial configuration generally in or adjacent to the I-15 ROW. From approximately Miramar Road south to the confluence of I-15 and SR 163, the HST enters a below-grade section to cross the Miramar Marine Corps Air Station flight path. The below-grade section extends approximately 3 miles and portals just south of the I-15/SR 163 interchange. The HST alternative alignment would then become aerial for another 2.5 miles and again enters an approximate 3-mile-long, below-grade section to accommodate the vertical alignment design requirements as it passes Montgomery Field. Figure 3-65 shows the below-grade configuration on SR 163 between Balboa Avenue and Mesa College Drive. The alignment portals and again transitions to an above-grade configuration, crosses over the SR 163/I-8 interchange and I-8, and turns west in Mission Valley to approach SDIA. Figure 3-66 shows the SR 163 corridor looking south from Balboa Avenue.

At the January 2011 TWG meeting two additional design options for this corridor were presented and discussed. One follows the west side of SR 163 near Montgomery Field, and the other follows the east side of the freeway near Montgomery Field. Both options provide an opportunity to avoid the bored tunnel and be in a trench configuration past the airport runways. However, both have impacts on adjacent properties. Further coordination with the San Diego TWG is needed to determine the optimum solution for this alternative. Meetings are being held on a monthly basis to receive input from the stakeholders.

This alternative alignment either terminates at SDIA or connects to S3-B2 to extend to Downtown San Diego.

Figure 3-65: HST Below-Grade Alignment at SR 163

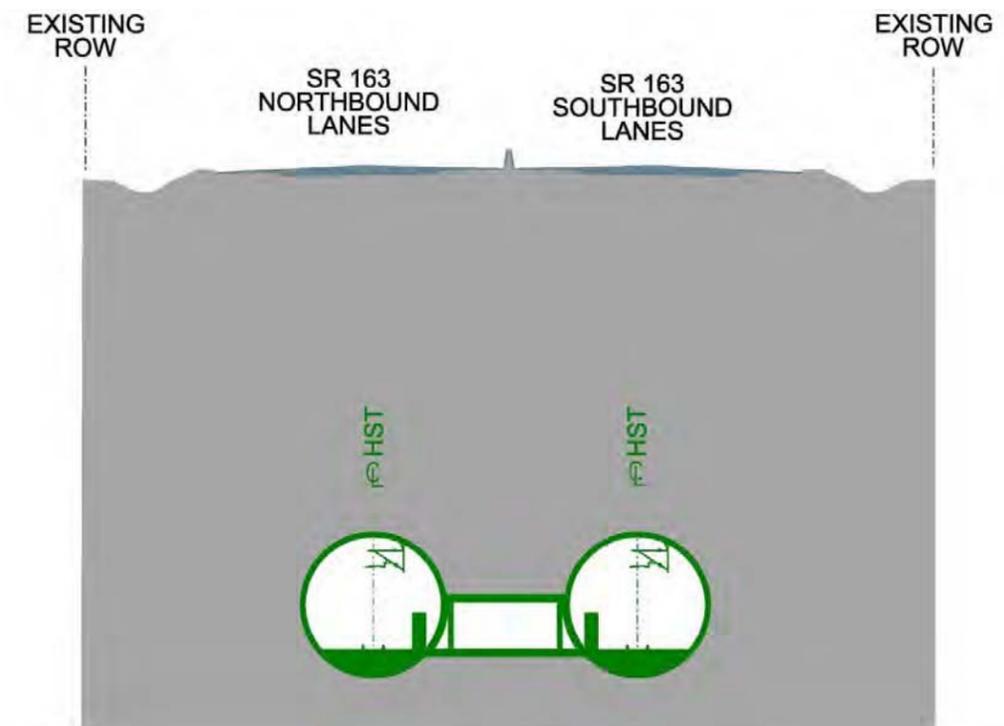


Figure 3-66: SR 163 Corridor (Looking South from Balboa Avenue)



S3-A4: Murrieta/Temecula to SDIA via I-15 and I-8

This alternative travels through the cities of Murrieta, San Marcos, Escondido, Poway, Miramar, and San Diego and unincorporated areas in Riverside and San Diego counties. This alternative alignment follows the I-15 corridor south from Murrieta/Temecula through Escondido, past Mira Mesa, and stays on I-15 past the SR 163 interchange, continuing south. The alignment is a combination of above-grade and below-grade configurations similar to Alternative S3-A3 and portals from the below-grade concept just south of the SR 163 interchange as described above. From this point, the HST guideway is elevated; it continues south on I-15, crosses the I-15/I-8 interchange on the west, and turns west to parallel I-8 in Mission Valley. Figure 3-67 shows the configuration of the HST in the I-15 right-of-way from Miramar Marine Corps Air Station to I-8. The alignment crosses over the multi-level I-8/I-805 interchange and continues in an above-grade configuration going west. Figure 3-68 shows I-8 looking east at Taylor Street. Figure 3-66 shows the alignment configuration within the I-8 right-of-way between I-15 and I-5. This alternative alignment either terminates at SDIA or connects to S3-B2 to extend to Downtown San Diego. Stations along this alternative alignment would be located at Escondido, SDIA, and Downtown San Diego.

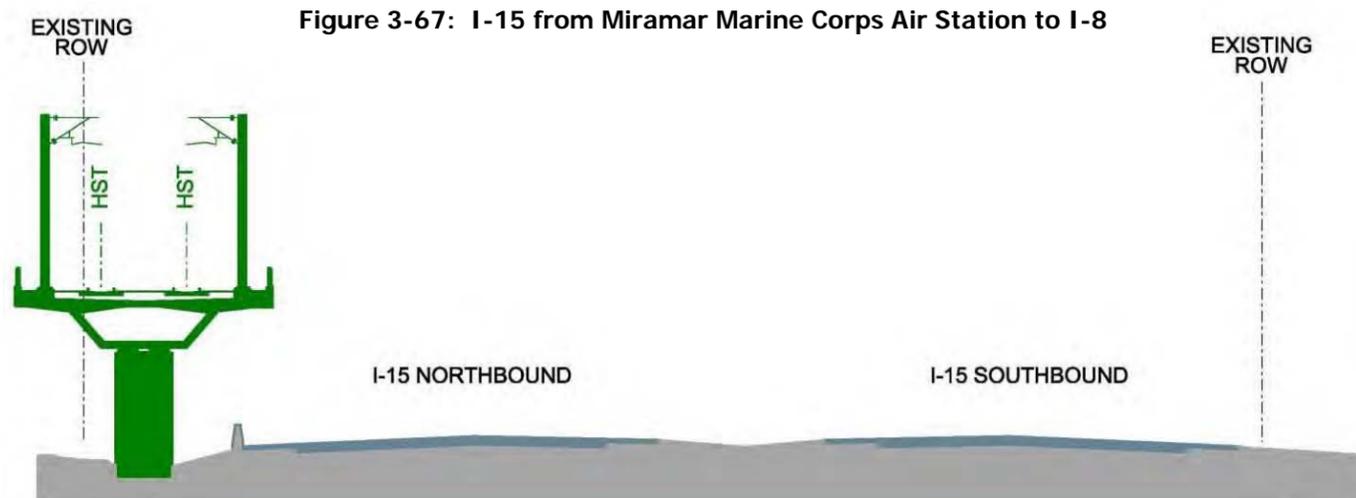


Figure 3-67: I-15 from Miramar Marine Corps Air Station to I-8

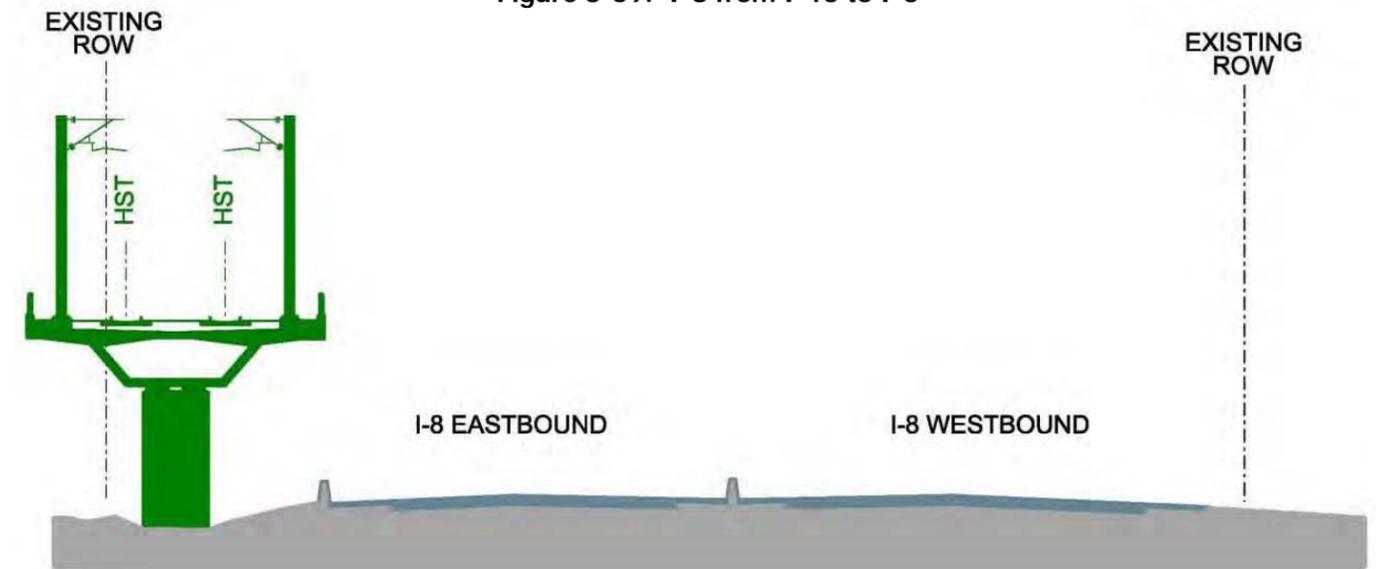


Figure 3-69: I-8 from I-15 to I-5

Figure 3-68: I-8 Looking East at Taylor Street



S3-A5: Murrieta/Temecula to Qualcomm Stadium Terminus via I-15

This alternative travels through the cities of Murrieta, San Marcos, Escondido, Poway, Miramar, and San Diego and unincorporated areas in Riverside and San Diego counties. This alternative follows the I-15 corridor south from Murrieta/Temecula through Escondido, then continues south along I-15 to Qualcomm Station. The alignment follows the identical configuration described under Alternative S3-A4 to Qualcomm Stadium, where it terminates. This alignment was considered and not carried forward in the 2005 Statewide Program EIR/EIS, but has been included in the Project-level Alternatives Analysis in response to stakeholder concerns regarding the Program alignment through Rose Canyon. A large parking area would be available at this site, which has excellent freeway access from all directions and is centrally located in the San Diego region. A 26-minute trolley ride provides a connection to Downtown San Diego. The alignment terminates at Qualcomm Stadium, with an assumed intermodal connection to carry riders to SDIA or Downtown San Diego. Stations along this alignment could be in Escondido and at Qualcomm.

San Diego Terminus Design Options

S3-B2: SDIA to Downtown San Diego

This alternative alignment is the extension of the HST from SDIA south (Figure 3-55) to Downtown San Diego at the Santa Fe Depot. If carried forward, all of the alternative alignments except S3-A5 could connect with this extension. The following are the two design alternatives:

Downtown San Diego Station Option (SDIA to Santa Fe Depot) (above-grade) (S3-B2.1) – This alignment would be above-grade south from the SDIA Intermodal Transit Center along the existing railroad right-of-way and Kettner Boulevard, accessing the Santa Fe Depot on the west side.

Downtown San Diego Station Option (SDIA to Santa Fe Depot) (below-grade) (S3-B2.2) – This alignment would follow the same path at B2.1 but would be in a below-grade configuration.

An HST station at Santa Fe Depot is being evaluated.

Maintenance Facility Options

Two types of maintenance facilities will be required within the LA–SD section of the statewide HST System, a Terminal Storage Maintenance Facility and a Maintenance of Way Facility. It is anticipated that one Heavy Maintenance Facility will be required, and it will be located in San Diego near the southern terminus of the project. It is anticipated that two Maintenance of Way Facilities will be required, one in the eastern portion of Los Angeles County and the other in the southern portion of Riverside County. These two types of maintenance facilities are described in more detail below.

Terminal Storage Maintenance Facility – This facility in San Diego will provide for overnight storage of train sets, as well as inspection and limited maintenance capabilities. The preferred location for this facility would be within 1.5 miles of the southern terminus of the alignment, although an exception would be required if the facility is located farther than 3 miles from the southern terminus. Discussions have been ongoing with the City of San Diego to identify candidate sites for this facility for each of the proposed alternative corridors. This facility will require a site that is approximately 70 to 93 acres. Further discussions are required to finalize potential locations for this facility for each alternative to be carried forward.

Maintenance of Way Facility – The purpose of this facility is to provide space for the parking and storage of on-track maintenance equipment, provide storage of maintenance of way material, and support a headquarters and staging area for HST maintenance personnel. These facilities require approximately 24 to 26 acres of land, inclusive of roadways and parking. Sites must be immediately adjacent to the HST main line and must have connectivity to the highway road network and access to utilities. In a meeting with the cities of Murrieta and Temecula on July 12, 2010, the need for this facility in southern Riverside County was discussed. The city representatives felt that there were not many sites of this size readily available within their communities and suggested that sites likely exist north of Murrieta in either the I-15 or I-215 corridor.

Potential sites for these maintenance facilities are being identified in discussions with various agencies and other stakeholder outreach. The potential sites will be evaluated in a future supplemental alternatives analysis.

3.3.6 LA–SD Section Station Alternatives

The LA–SD Section alternatives include 24 potential HST station candidates that have been identified and are evaluated in this Alternative Analysis Report. These stations are grouped by the three subsections described in previous sections. They are identified in Figures 3-70 through 3-77 for Subsection 1, Figures 3-78 through 3-86 for Subsection 2 and Figures 3-87 through 3-93 for Subsection 3. Additionally, some stations are grouped geographically within the alternatives that will ultimately have one station site selected from the group. The candidate stations or geographic groupings are described below along with a graphical depiction of each station site.

Each station will be one of two types, either an intermediate station or a terminus station. An intermediate station will have four tracks – two station tracks that will be adjacent to the two station platforms and two through tracks for trains that will not be stopping at that station. A terminus station will have three platforms and six tracks, and it is assumed that all trains will be stopping at a terminus station. All station options in the LA–SD section will be intermediate stations except for the three terminus station options in Subsection 3 described under the San Diego Station Alternative.

Los Angeles Union Station to Ontario International Airport Subsection (S1) Station Alternatives

As previously discussed, the Los Angeles Union Station (LAUS) site is part of the Los Angeles to Anaheim Alternative Analysis and Environmental Documentation. The Los Angeles to Ontario International Airport subsection will have one HST station located within it, which will be a San Gabriel Valley station chosen from among seven station options. The potential HST station detail descriptions follow.

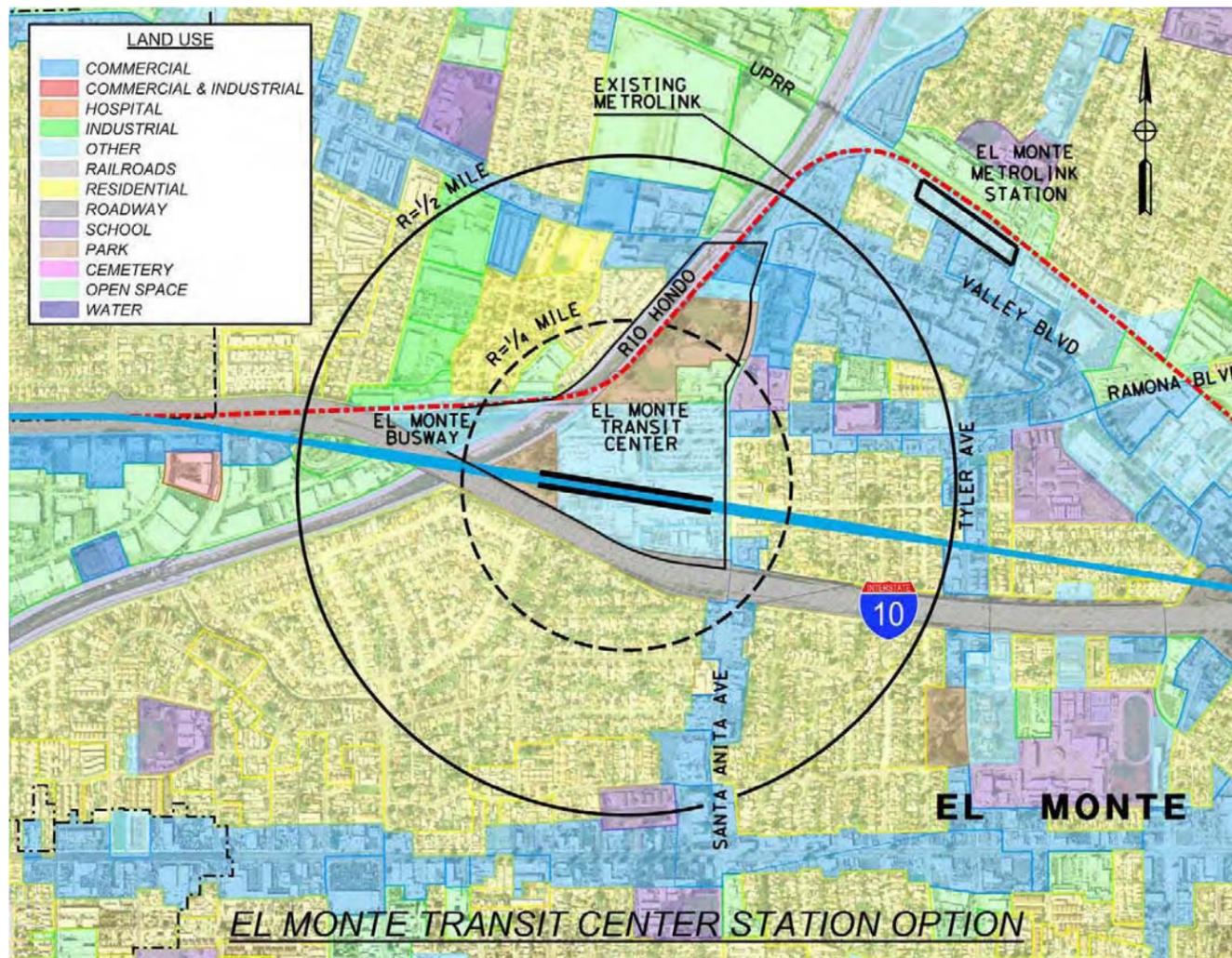
San Gabriel Valley Station Alternatives

El Monte Transit Center Station Option

Alignment Alternative: I-10 (S1-A1) Alignment (Figure 3-7)

Description: The proposed station location is north of the Santa Anita Avenue interchange on the I-10 freeway. The station is elevated over the El Monte Transit Center, a major San Gabriel Valley intermodal center, and the eastern terminus of the El Monte Busway serving downtown Los Angeles (Metro Silver Line). The station extends east across Santa Anita Avenue. The station serves downtown El Monte directly and is within 0.75 mile of the El Monte Metrolink Station to the northeast. The station has easy access from the I-10 freeway. Figure 3-70 shows an aerial view of the station area.

Figure 3-70: El Monte Transit Center Station Option

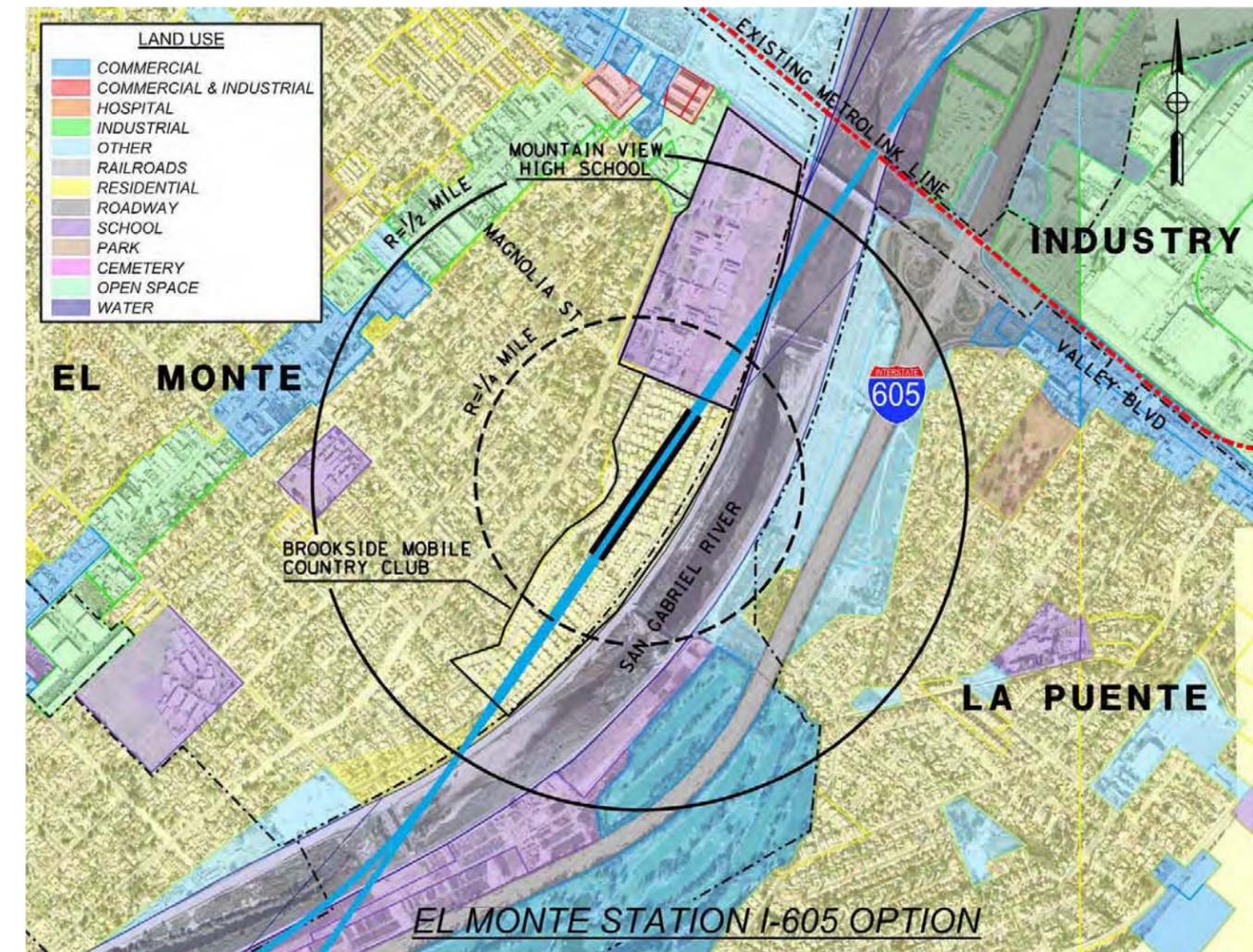


El Monte Station – I-605 Option

Alignment Alternatives: S1-A2 and S1-A4 (See Figure 3-7)

Description: The proposed station location is west of the Valley Boulevard/I-605 freeway interchange in El Monte, alongside the west bank of the San Gabriel River channel. The station is elevated and displaces a high school campus—Mountain View High School—and a sensitive residential area (single-family homes and Brookside Mobile Country Club). The station has easy access from the I-605 freeway. Figure 3-71 shows an aerial view of the station area.

Figure 3-71: El Monte Station – I-605 Option

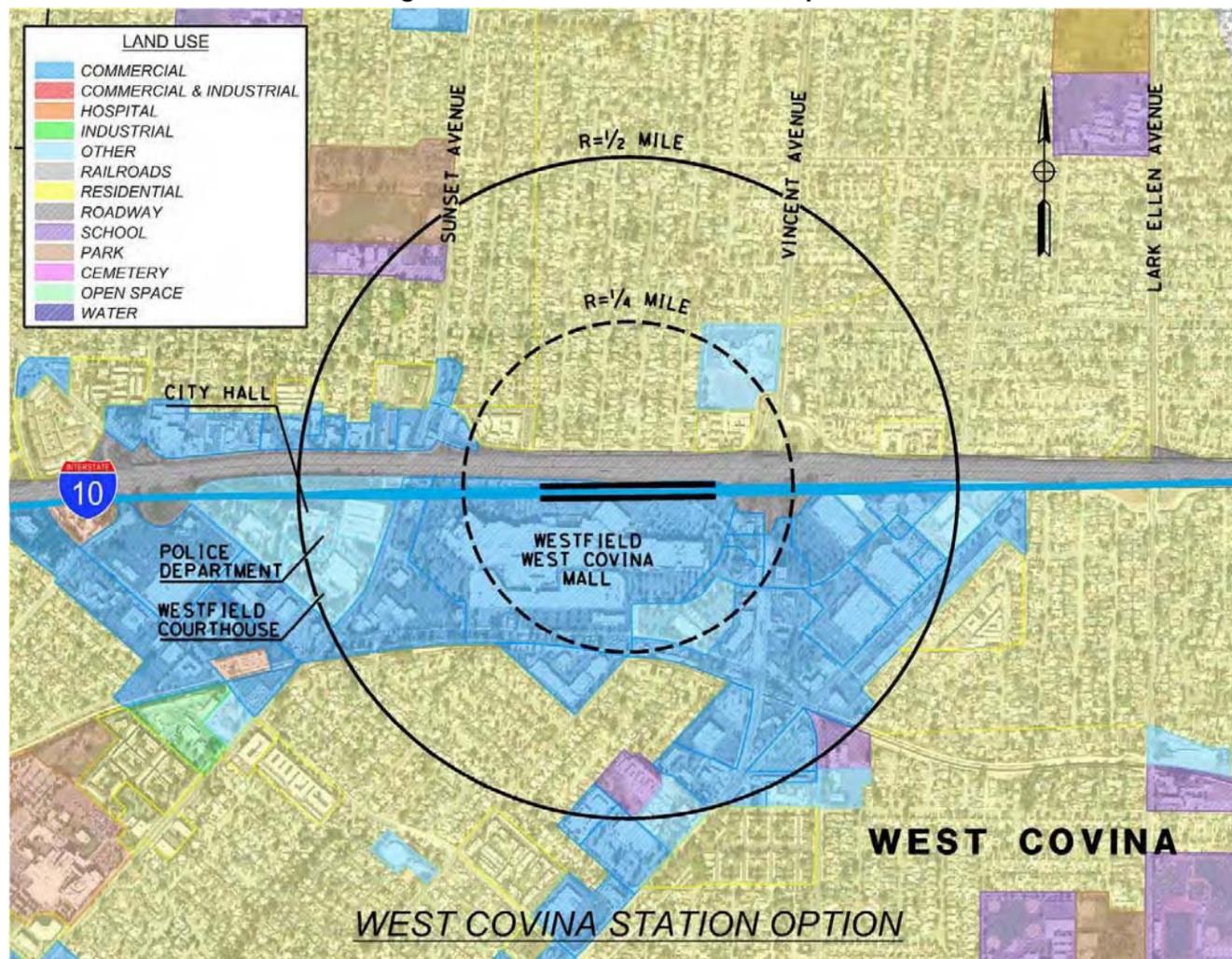


West Covina Station Option

Alignment Alternative: S1-A6 (See Figure 3-18)

Description: The proposed station location is along the south side of the I-10 freeway, at the North Vincent Avenue interchange. The elevated station is adjacent to downtown West Covina and overlays the edges of regional shopping center properties fronting the freeway (including Westfield West Covina Mall to the west of North Vincent Avenue). The site is approximately equidistant between the LAUS and Ontario International Airport HST stations. Figure 3-72 shows an aerial view of the station area. The alignment to the east and west of this station will be in the median of I-10. The station itself is desired to be on the south side of the freeway, where land uses are commercial and industrial as opposed to the residential uses on the north side of the freeway. The intent is to stay in the median as much as possible approaching the station from both directions, but to have the station adjacent to the freeway on the south side. Further discussions are needed with the city and the adjacent property owners regarding the siting of this station.

Figure 3-72: West Covina Station Option

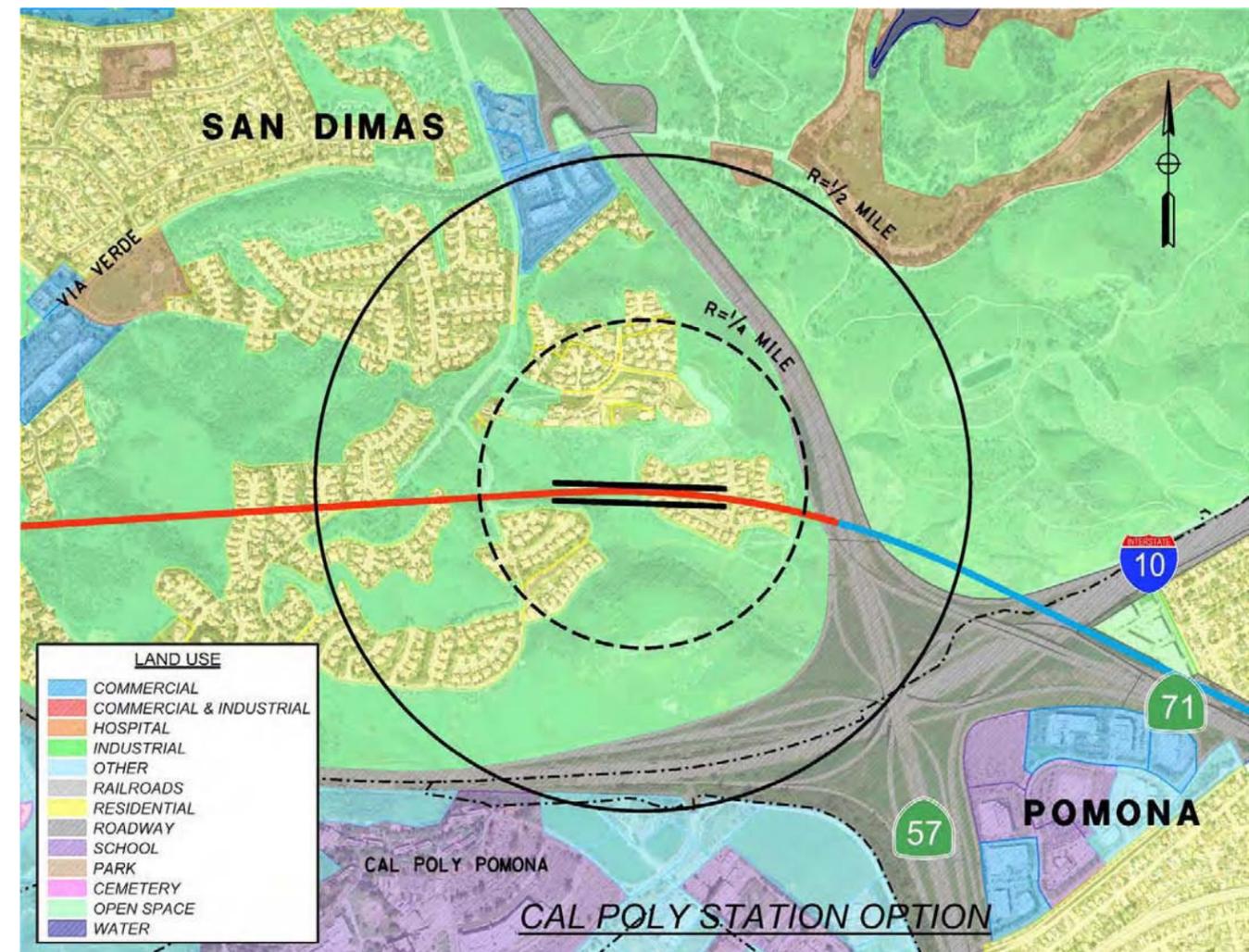


Cal Poly Station Option

Alignment Alternative: S1-A6 (See Figure 3-18)

Description: The proposed station location is in the Covina Hills north of the I-10 freeway, west of the Via Verde interchange, close to the campus of California Polytechnic University, Pomona (Cal Poly). A station near Cal Poly was originally envisioned when the 2005 Programmatic Alignment passed to the south of the campus on the UPRR alignment. With the development of the I-10 alternative, an attempt has been made to identify a Cal Poly station on that alignment. Because of the topography of the area, the I-10 alignment is below-grade in a tunnel configuration as it passes closest to Cal Poly. The site has limited access from the I-10 freeway and no identified intermodal connections or TOD potential. Figure 3-73 shows an aerial view of the area where the I-10 alignment passes north of the Cal Poly campus.

Figure 3-73: Cal Poly Station Option

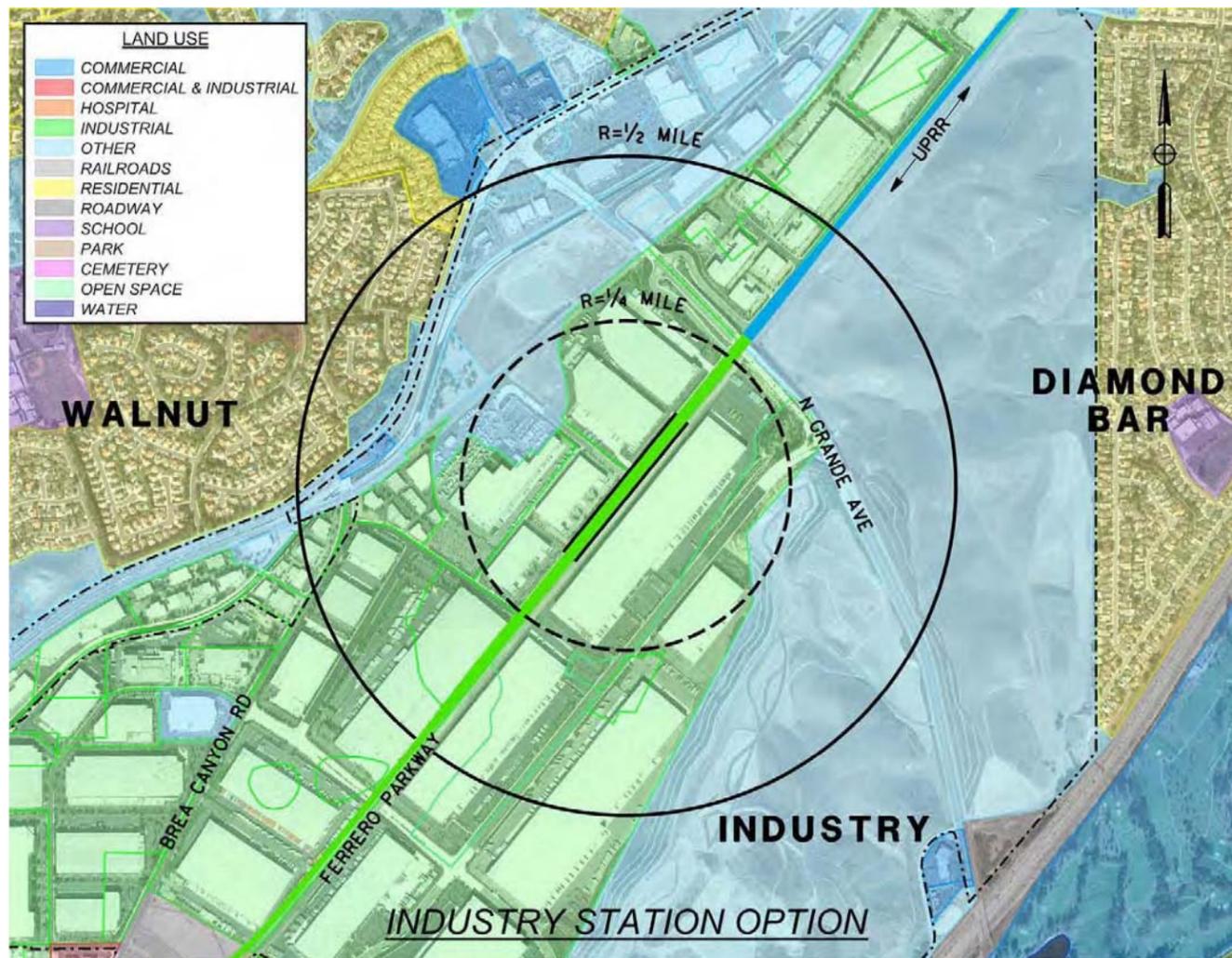


Industry Station Option

Alignment Alternative: S1-A7 (See Figure 3-18)

Description: The proposed station location is northeast of the City of Industry Metrolink Station, near the intersection of Grand Avenue and Ferrero Parkway on the UPRR alignment. The location is a modification of the recommended alternative for an HST station between LAUS and Ontario International Airport, as identified in the 2005 Statewide Program EIR/EIS Station is elevated, adjacent to or above UPRR railroad corridor. The context is industrial with “big box” warehouses adjacent to the railroad corridor and the site has easy access from the SR 60 freeway. Figure 3-74 shows an aerial view of the station area.

Figure 3-74: Industry Station Option

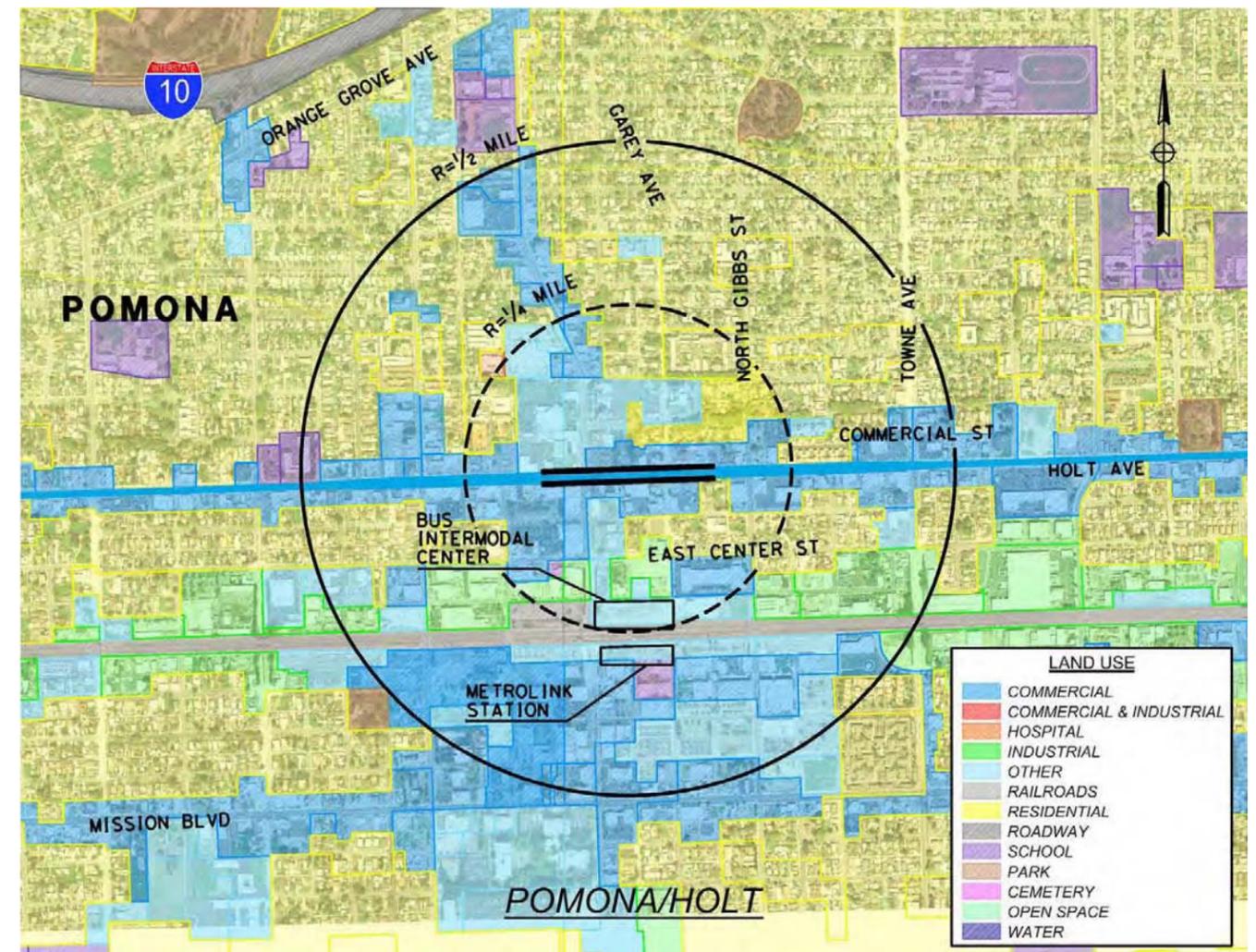


Pomona/Holt Station Option

Alignment Alternatives: S1-A6.1 (See Figure 3-18)

Description: The proposed station location is at Garey Avenue, one block south of the Holt Avenue/Garey Avenue intersection. The station is elevated and adjacent to the Holt Avenue commercial corridor, two blocks from the Downtown Pomona Metrolink Station and bus intermodal center, and within 0.25 mile of the downtown commercial core. The nearest freeway access is within 1 mile, at the Garey/I-10 freeway interchange. Figure 3-75 shows an aerial view of the station area.

Figure 3-75: Pomona/Holt Station Option

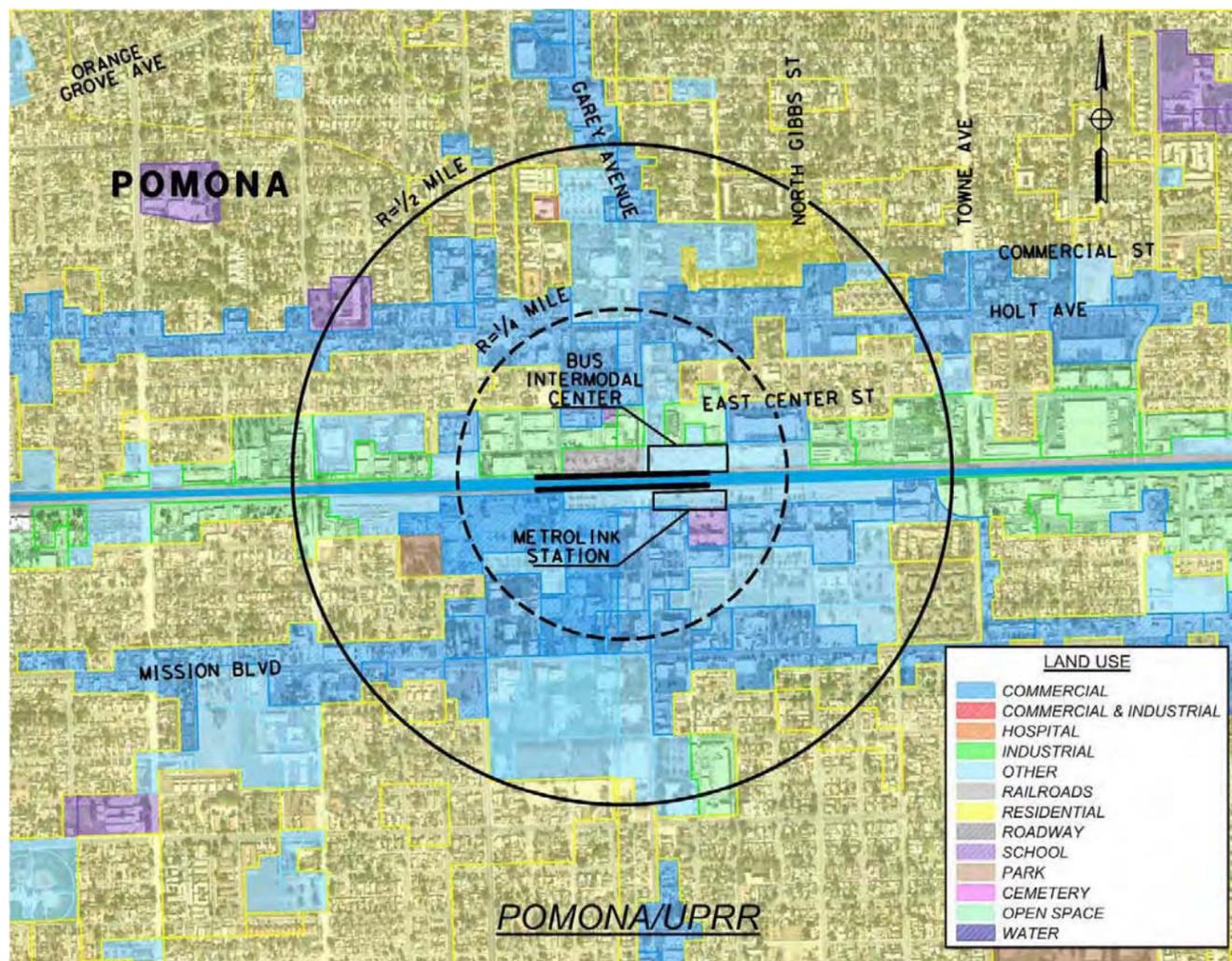


Pomona/UPRR Station Option

Alignment Alternative: S1-A7 (See Figure 3-18)

Description: The proposed station location is at the Downtown Pomona Metrolink Station and bus intermodal center, near the intersection of Garey Avenue and Commercial Street. As proposed, the elevated station is above the UPRR railroad corridor with a mezzanine bridge to the Metrolink Station (to the north) and the downtown commercial district (to the south). Figure 3-76 shows an aerial view of the station area.

Figure 3-76: Pomona/UPRR Station Option

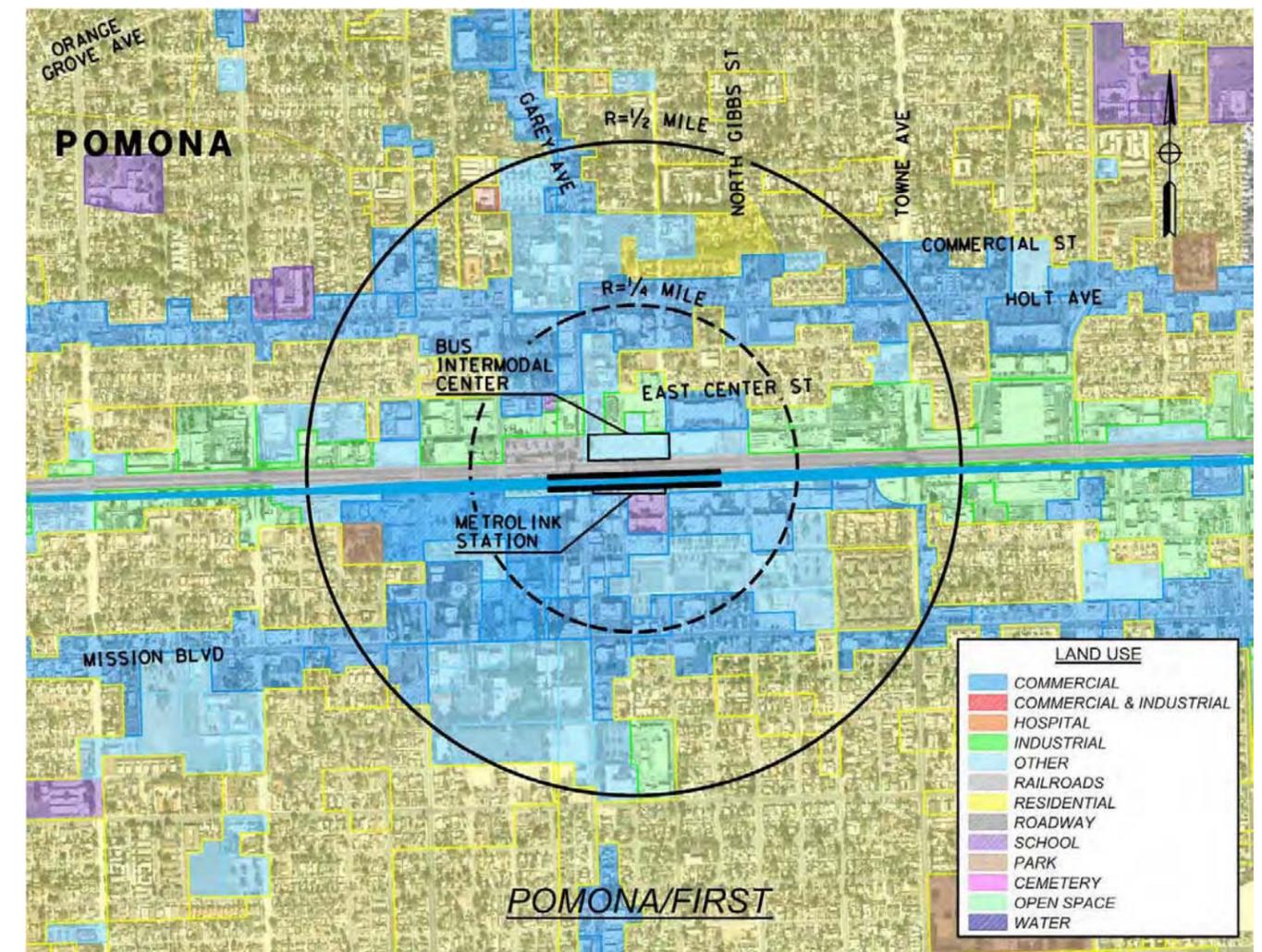


Pomona/First Station Option

Alignment Alternative: S1-A6.2 (See Figure 3-18)

Description: The proposed station location is immediately south of the Downtown Pomona Metrolink Station and bus intermodal center, near the intersection of Garey Avenue and First Street. As proposed, the elevated station is above First Street, with a mezzanine connecting bridge to the Metrolink Station (to the north) and the downtown commercial district (to the south). Figure 3-77 shows an aerial view of the station area.

Figure 3-77: Pomona/First Station Option



Ontario International Airport to Murrieta/Temecula Subsection (S2) Station Alternatives

The Ontario International Airport to Murrieta/Temecula subsection has three HST station alternatives located within it in addition to the Ontario International Airport Station: a San Bernardino Station Alternative, a North Riverside County Station Alternative, and a Murrieta/Temecula Station Alternative. The North Riverside County alternative consists of four station options under consideration. The selected HST alignment alternative will have a single station alternative selected within the "North Riverside County" geographic area. There are two Murrieta/Temecula alignment alternatives (I-215, consisting of alignment alternatives S2-A1, A2, A3, and A5) and I-15 (consisting of alignment alternative S2-A4). Thus, there are two station alternatives, of which one will be selected based on which alignment alternative is selected.

Ontario International Airport Station Alternative

Ontario International Airport Station

Alignment Alternatives: All S1 and S2 alignment alternatives serve this station (See Figure 3-18)

Description: The proposed station location is along the south side of UPRR right-of-way, north of the Ontario International Airport passenger terminals, east of Cucamonga Channel, and west of Archibald Avenue. The station is elevated either above or adjacent to Airport Drive. Station planning includes a regional intermodal center linking the airport with a future extension of the Metro Gold Line, possible Metrolink commuter rail (if service is relocated to the adjacent UPRR corridor in the future), and easy access from the I-10 and I-15 freeways. The LAWA Master Plan for the airport calls for extension of the runway to the east, additional passenger terminals, and parking facilities. The station appears to be compatible with these airport expansion plans, but further coordination with LAWA is needed to ensure compatibility. Figure 3-27 in Section 3.3.4 depicts the airport master plan. Figure 3-78 shows an aerial view of the station area.

San Bernardino Station Alternative

City of San Bernardino Station Option

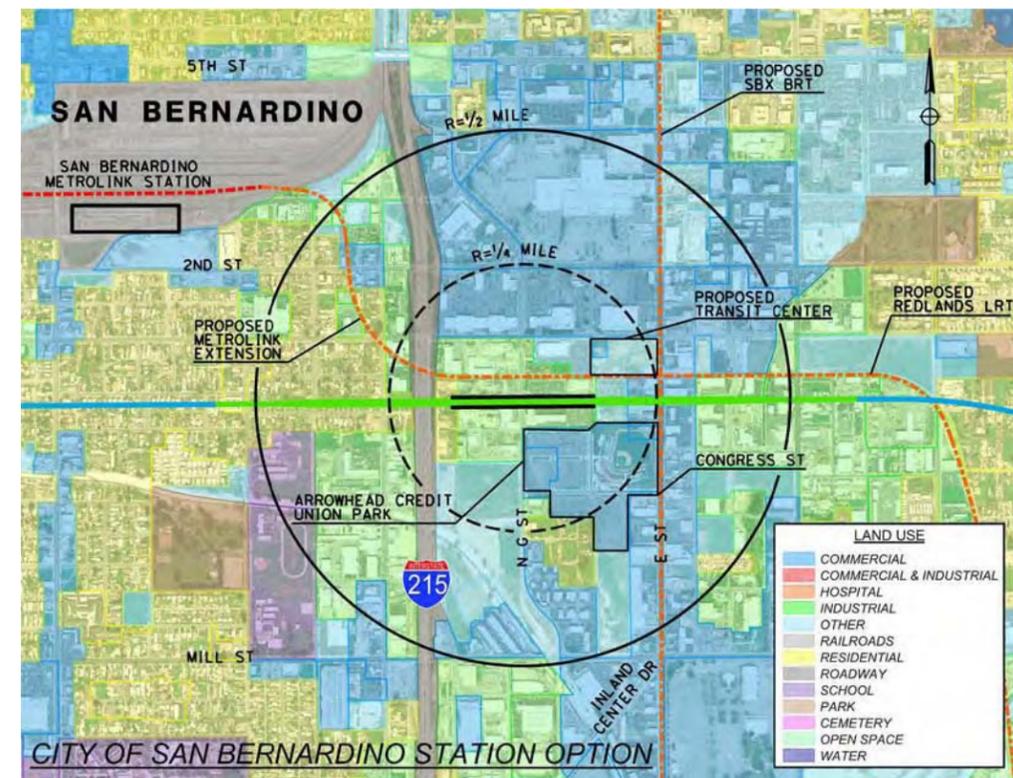
Alignment Alternative: S2-A1 (See Figure 3-28)

Description: The proposed station location is east of the I-215 freeway, south of the existing railroad tracks, west of "E" Street, and north of Congress Street. The at-grade station is located adjacent to the site of a future Downtown Transit Center, which will have services to include an extension of Metrolink from the existing Metrolink/Amtrak station, future LRT to Redlands, and the "sbX" bus rapid transit line along "E" Street. The site is within walking distance of the downtown commercial core and the Arrowhead Credit Union Park baseball stadium. There is easy access from the I-215 freeway. Figure 3-79 shows an aerial view of the station area.

Figure 3-78: Ontario International Airport Station



Figure 3-79: City of San Bernardino Station Option

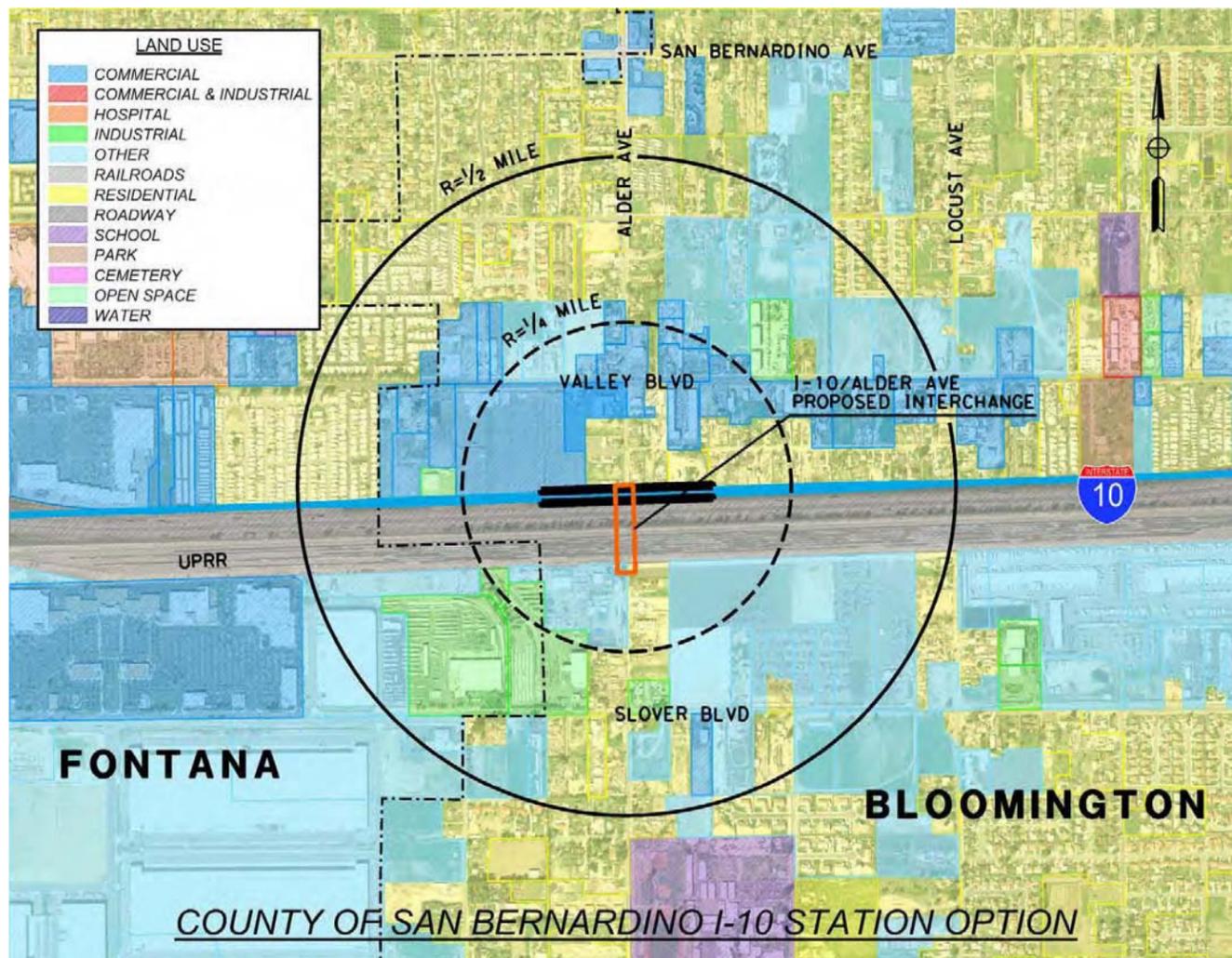


County of San Bernardino I-10 Station Option

Alignment Alternative: S2-A3 (See Figure 3-28)

Description: The proposed station location is above I-10 near Alder Avenue, just east of the Fontana city limits. The station would be elevated above the north side of the freeway right-of-way. A future freeway interchange is planned for Alder Avenue at I-10, and there is a potential for this interchange to provide a connection with the proposed I-10 HOV lanes. Figure 3-80 shows an aerial view of the station area.

Figure 3-80: County of San Bernardino I-10 Station Option



North Riverside County Station Alternative

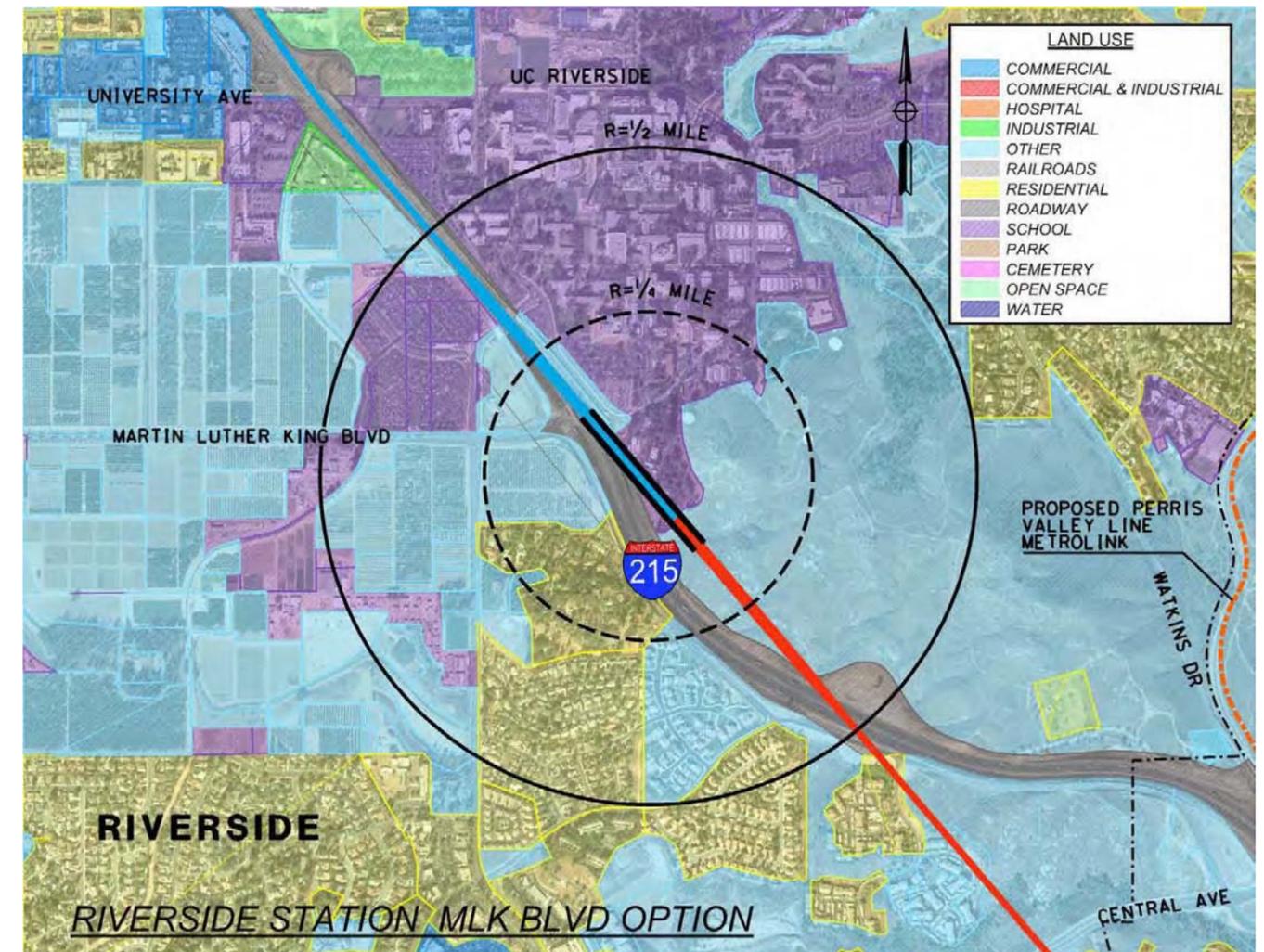
The North Riverside County Station Alternative consists of four station options, and the selected HST alignment alternative will have a single North Riverside County Alternative ultimately selected from the following station options.

Riverside Station – Martin Luther King Boulevard Option

Alignment Alternatives: S2-A1.2, S2-A2.2, and S2-A3.2 (See Figure 3-28)

Description: The proposed station location is above I-215 in the vicinity of the Martin Luther King Boulevard interchange. The station is mostly elevated, although approach tracks to the south will enter a tunnel portal south of the station. Property on both sides of I-215 in this area is part of the UCR campus. UCR has plans for development of the west side of the freeway into a major academic area. The site would have very constrained access from I-215. Figure 3-81 shows an aerial view of the station area.

Figure 3-81: Riverside Station-Martin Luther King Boulevard Option



Riverside Station – Watkins Drive Option

Alignment Alternative: S2-A1.3, S2-A2.3 and S2-A3.3 (See Figure 3-28)

Description: The proposed station location is along the east side of Watkins Drive, at the Watkins Drive/I-215 freeway interchange. The location is the original recommended alternative for the Riverside HST station, as identified in the 2005 Statewide Program EIR/EIS. The station is at-grade or partially depressed in a cut set into sloping terrain. The station has constrained access from the I-215 and SR 60 freeways. There is potential for a connection to future Metrolink service on adjacent UPRR San Jacinto Branch, although that connection would require a Metrolink station at this location (not currently planned). Figure 3-82 shows an aerial view of the station area.

March Air Reserve Base (ARB) Station Option

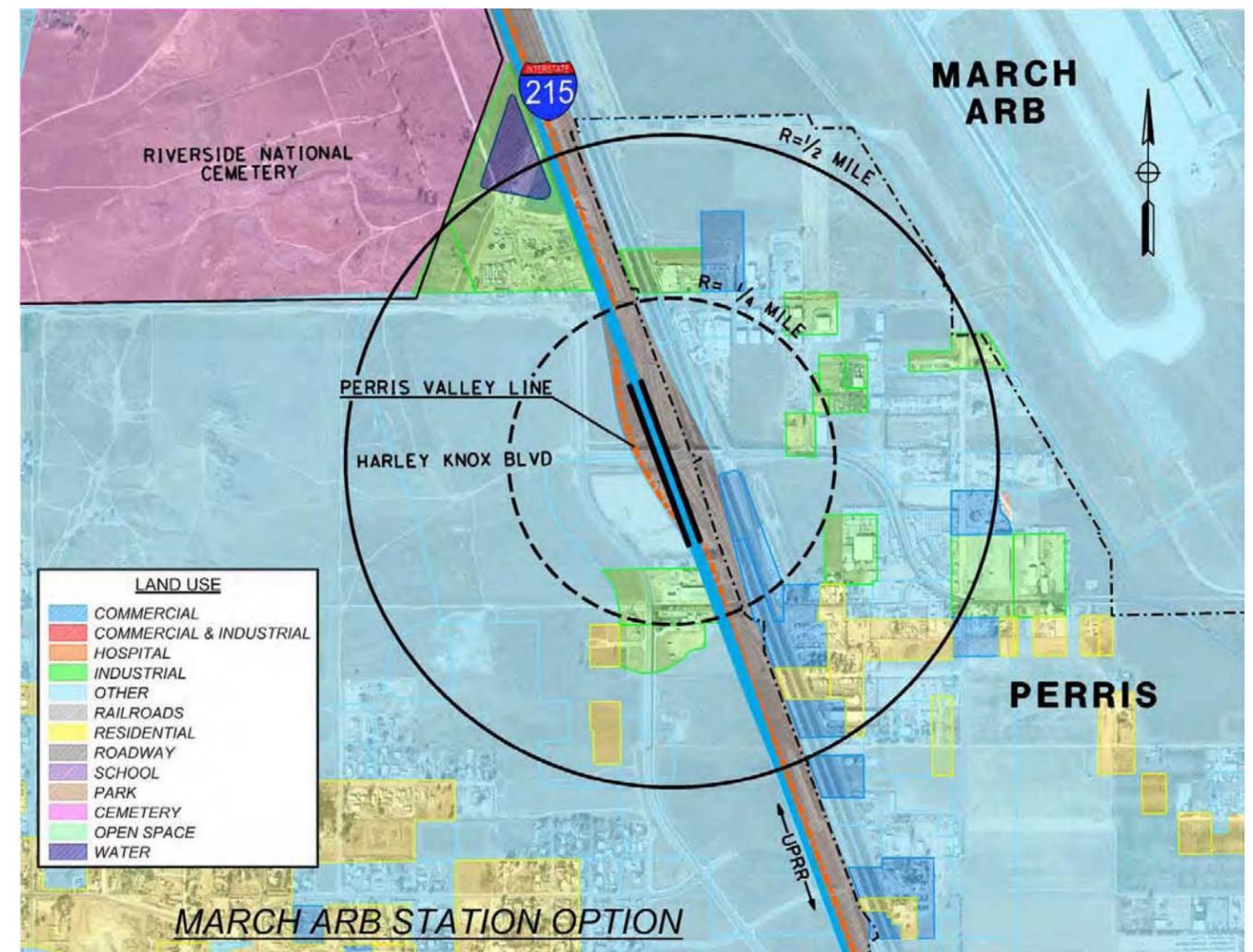
Alignment Alternative: S2-A1, S2-A2, and S2-A3 (See Figure 3-28)

Description: The proposed station location is along the west side of the I-215 freeway, near the Harley Knox Boulevard interchange. The elevated station is adjacent to and above the UPRR San Jacinto Branch line (future route of Metrolink extension to Perris) and south of the Riverside National Cemetery. Although it is not near traditional urban centers, the station serves a region of significant urban growth (western Riverside County). Future intermodal connections at the site include Metrolink (also serving downtown Riverside) and planned airline passenger services at March ARB. The station location is compatible with land uses projected in the March ARB/Inland Port Airport Joint Land Use Study. Figure 3-83 shows an aerial view of the station area.

Figure 3-82: Riverside Station - Watkins Drive Option



Figure 3-83: March ARB Station Option



Corona Station Option

Alignment Alternative: S2-A4 (See Figure 3-28)

Description: The proposed station location is along the east side of the I-15 freeway at the Cajalco Road interchange, 4 miles south of Downtown Corona. The elevated station serves an area of significant up-scale residential and commercial growth along the I-15 corridor and is located in a major regional retail and entertainment complex of three shopping centers (Crossings at Corona, Promenade Shops at Dos Lagos, and Village at Eagle Glen). Figure 3-84 shows an aerial view of the station area.

Figure 3-84: Corona Station Option



City of Murrieta Station Alternative

City of Murrieta Station Alternative has two station options. One of these options would be selected as the preferred HST station in this area.

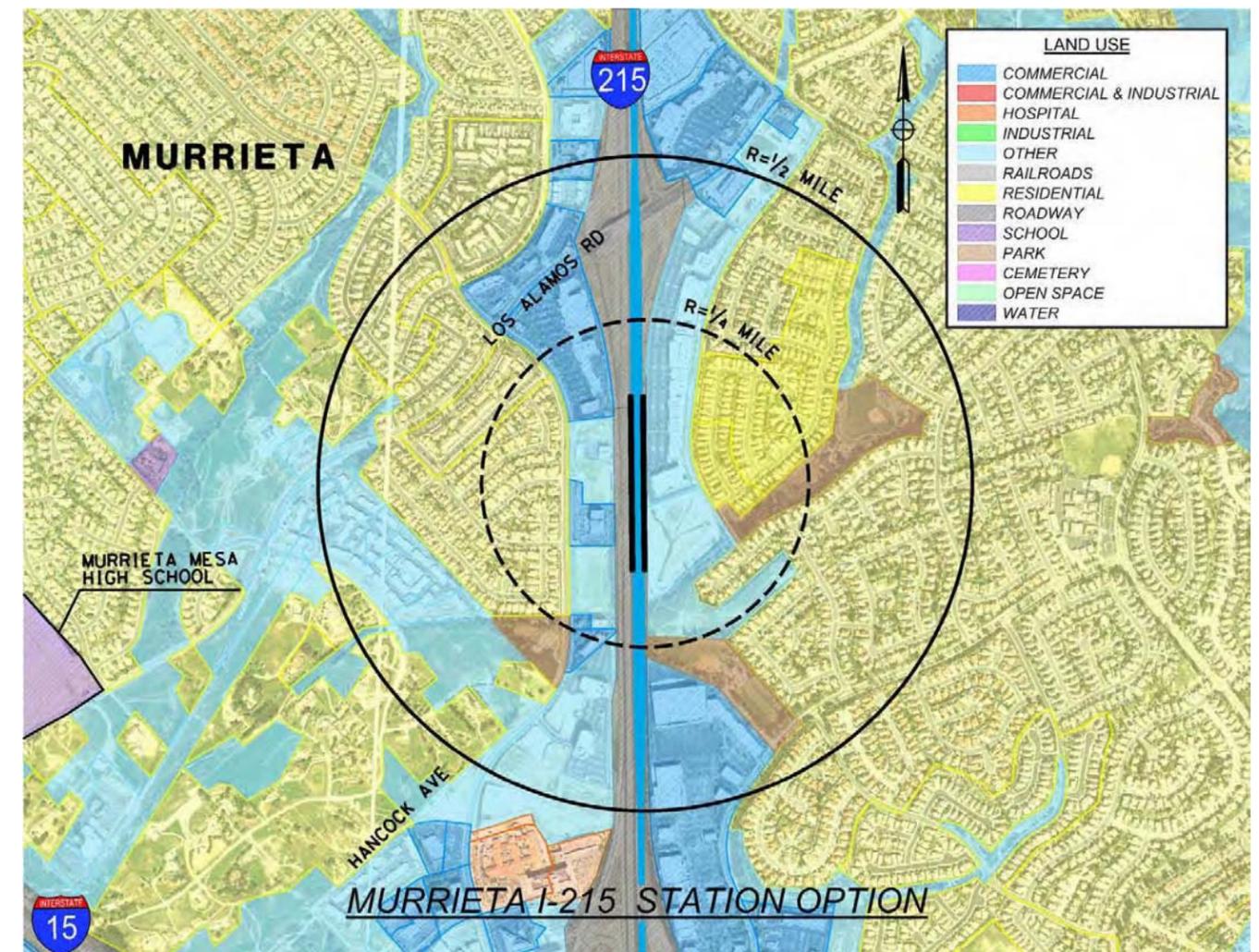
Murrieta – I-215 Station Option

Alignment Alternative: S1-A1; S2-A2, S1-A3 (See Figure 3-39)

Description: The proposed station location is along the I-215 freeway, between the Murrieta Hot Springs Road and Los Alamos Road interchanges. The station is within 2 miles of the Murrieta traditional town center and within 3 miles of the Temecula traditional town center, with easy access from the I-15 and I-215 freeways. As proposed, the elevated station is likely above and adjacent to the freeway with access bridges from frontage roads. The existing context is regional commercial center supporting rapid residential growth. Figure 3-85 shows an aerial view of the station area.

At the May TWG meeting, the I-215 alignment had the station located north of Winchester Road in order to be as close as possible to the wye where the I-15 and I-215 freeways connect. A focused meeting with the City of Murrieta in July 2010 resulted in a desire to shift the station north to be near Los Alamos Road, as shown on the station graphic.

Figure 3-85: Murrieta – I-215 Station Option

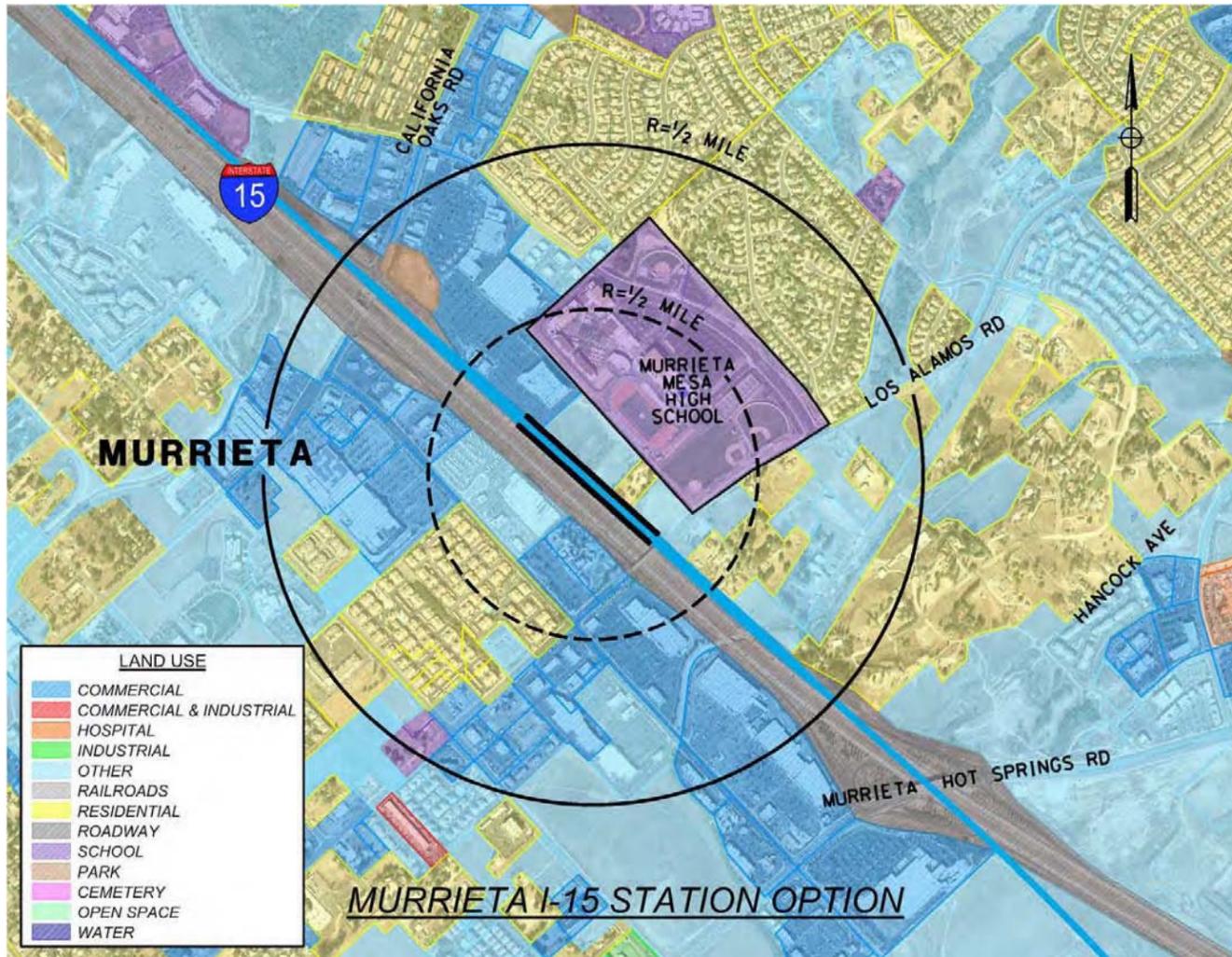


Murrieta – I-15 Station Option

Alignment Alternative: S2-A4 (See Figure 3-39)

Description: The proposed station location corresponds to alignment S2-A4 along the I-15 freeway. As proposed, the elevated station is likely above and adjacent to the freeway, between the Los Alamos Road underpass and the California Oaks Road/I-15 interchange, with access bridges from frontage roads. Figure 3-86 shows an aerial view of the station area.

Figure 3-86: Murrieta – I-15 Station Option



Murrieta/Temecula to San Diego Subsection (S3) Station Alternatives

The Murrieta/Temecula to San Diego subsection has three HST station alternatives located within it: the Escondido Station Alternative consisting of two station alternatives; the University City Station Alternative, consisting of two station options; and the San Diego Station Alternative, consisting of three station options. The potential HST station detail descriptions follow.

City of Escondido Station Alternative

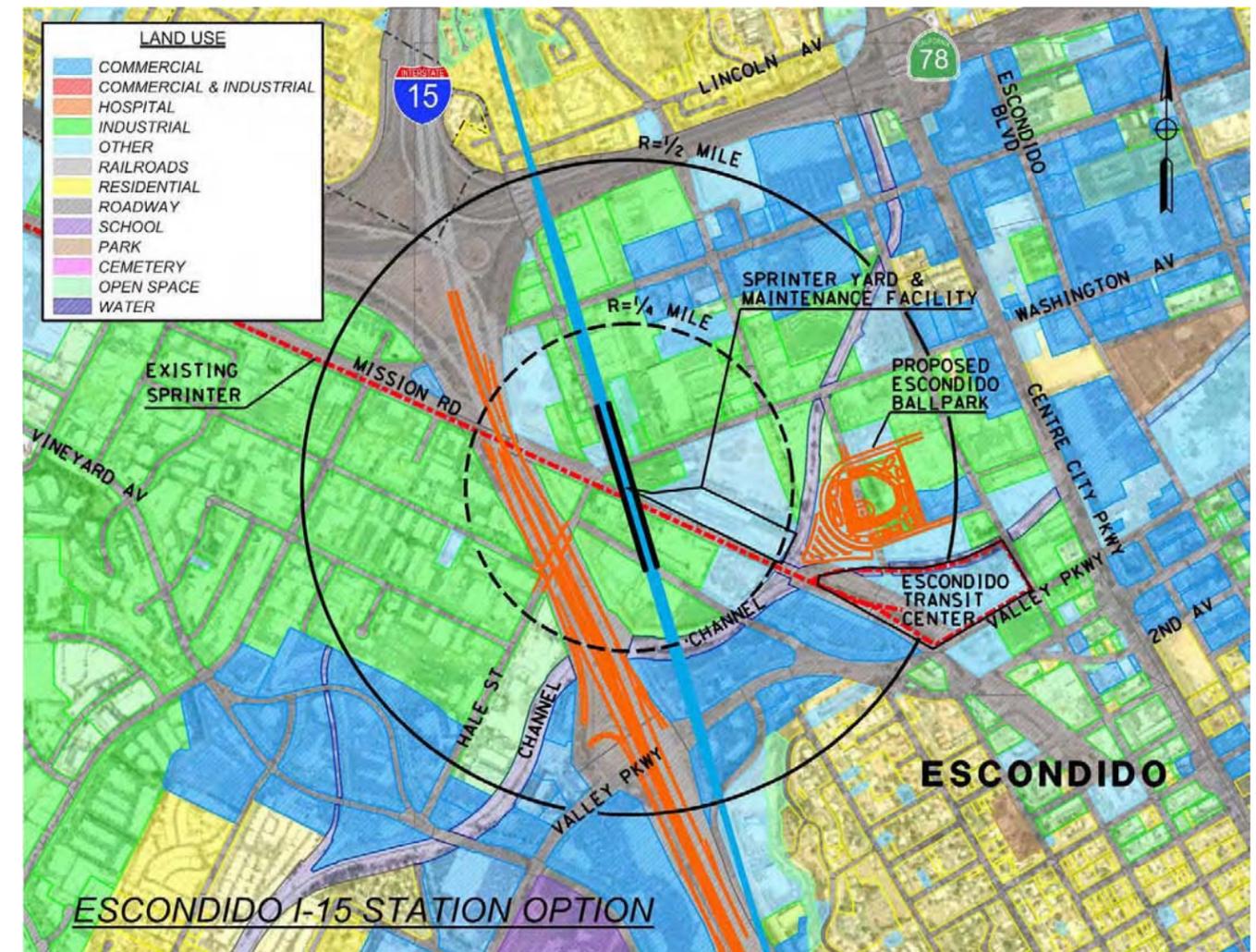
City of Escondido Station Alternative has two station options. One of these would be selected as the preferred HST station.

Escondido – I-15 Station Option

Alignment Alternative: S3-B1.1 (See Figure 3-46)

Description: The proposed station location is along the east side of the I-15 freeway, southeast of the I-15/SR 78 interchange. As proposed, this elevated station spans the Sprinter passenger rail line (BNSF) and lead tracks to the Sprinter yard and maintenance facility. The station is located almost 0.5 mile from Escondido Transit Center, and is not within walking distance of downtown. Potential connection to Sprinter might require a new Sprinter platform at the station or other provisions to connect to the existing Sprinter station at the Escondido Transit Center. This site will have good access from the I-15 and SR 78 freeways when freeway improvements that are under construction are completed. The freeway improvements include a direct access ramp connection from the HOV lanes in the median of I-15 to Hale Street, which would connect directly to the proposed HST station site. Figure 3-87 shows an aerial view of the station area.

Figure 3-87: Escondido – I-15 Station Option

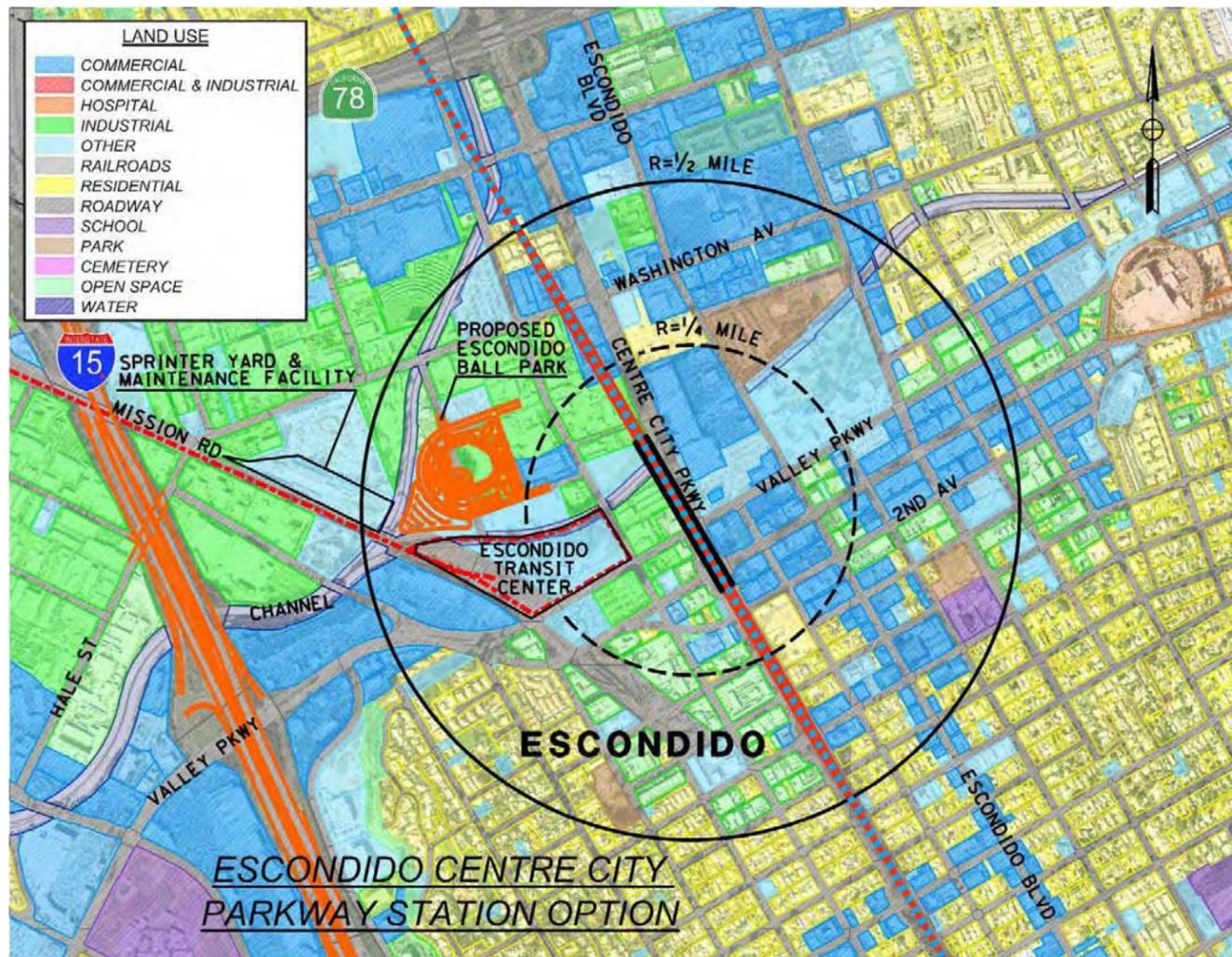


Escondido – Centre City Parkway Station Option

Alignment Alternatives: S3-B1.2, S3-B1.3 (See Figure 3-46)

Description: The proposed station location is along Centre City Parkway at the West Valley Parkway intersection, between the Escondido Transit Center and downtown. The station, as proposed, is either elevated (S3-B1.2) or below-grade (S3-B1.3). The station connects directly to the western edge of downtown and is within one block of the transit center, which is served by Sprinter commuter rail, intercity bus, and local transit bus. Land uses in this corridor are older and relatively more established low to medium density retail/commercial along the Centre City Parkway corridor. The site has reasonable access from the I-15 and SR 78 freeways. Figure 3-88 shows an aerial view of the station area.

Figure 3-88: City of Escondido – Centre City Parkway Station Option



University City Station Alternative

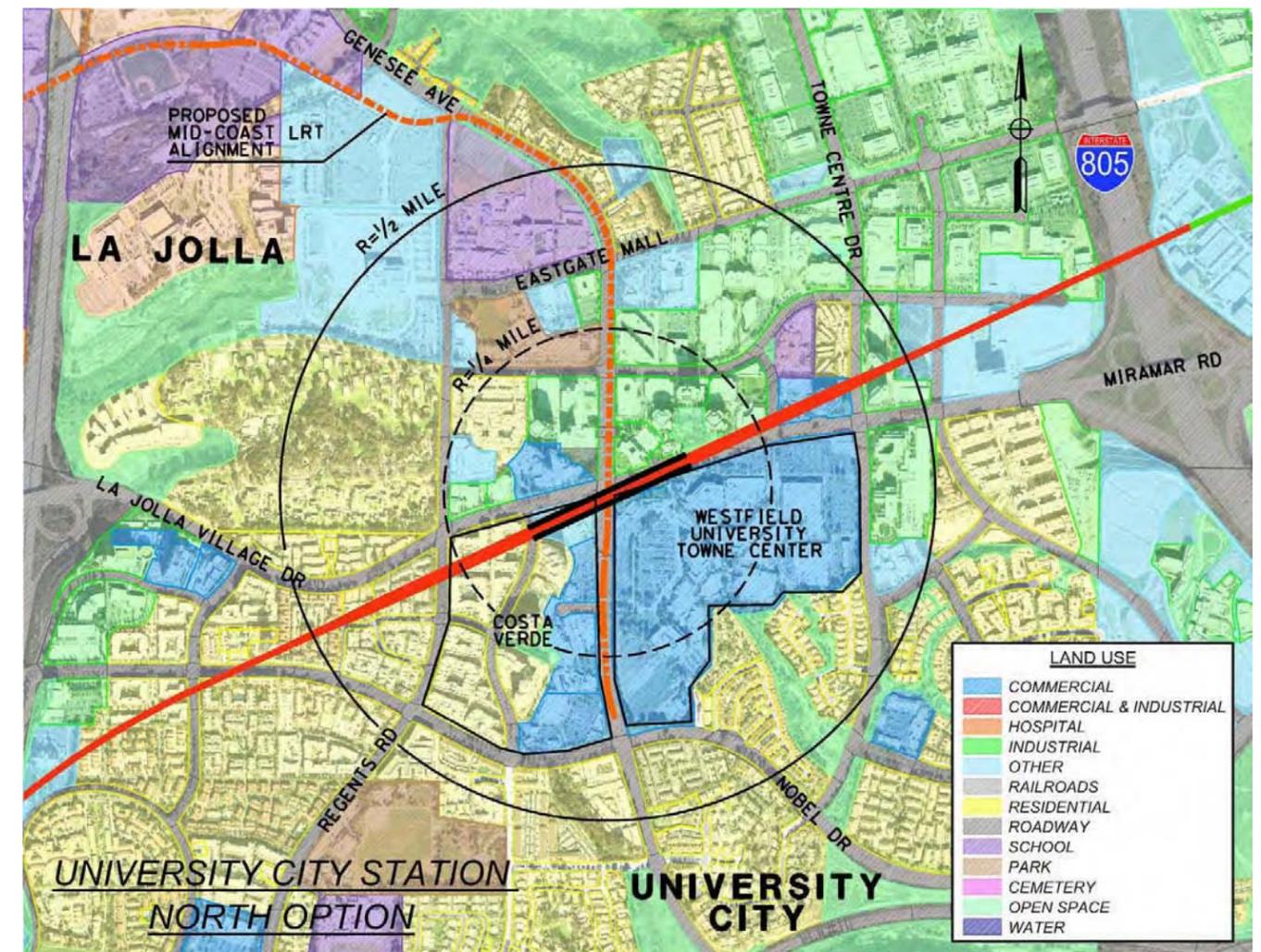
University City Station Alternative has two station options. One of these options could be selected as the preferred HST station in this area.

University City Station North Option

Alignment Alternative: S3-A2.2; (See Figure 3-52)

Description: The proposed station location is at the intersection of La Jolla Village Drive, and Genesee Avenue. The deep underground station connects directly to the University Towne Center and Costa Verde developments, which comprise a regionally significant, high-density retail/commercial/residential urban center. Significant medium-density residential development is within 0.5 mile of the station. Figure 3-89 shows an aerial view of the station area.

Figure 3-89: University City Station North Option

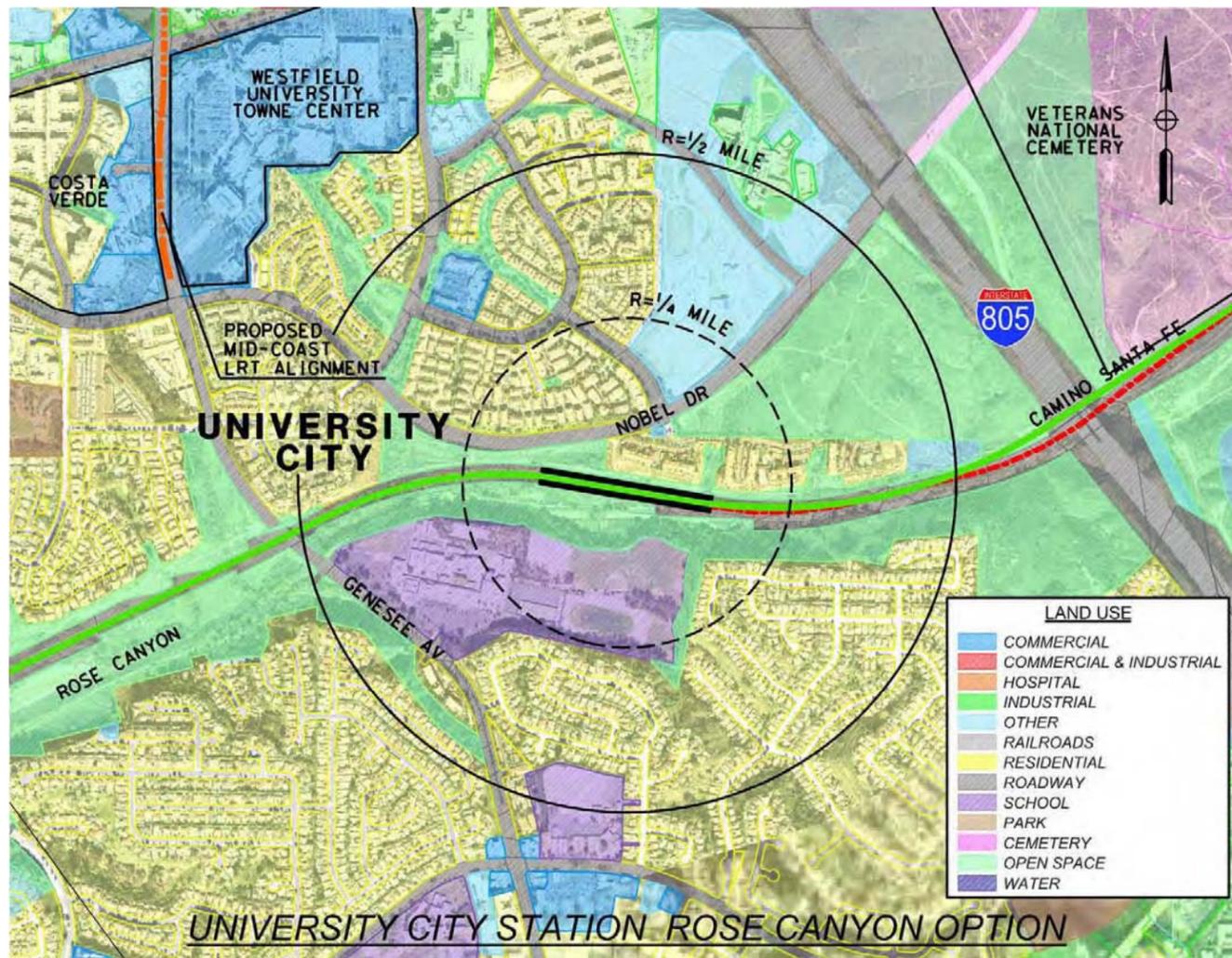


University City Station Rose Canyon Option

Alignment Alternative: S3-A2.3 (See Figure 3-52)

Description: The proposed station location is adjacent to Rose Canyon, along Nobel Drive, to the east of Genesee Avenue. This location is in the general area of the original recommended alternative for the University City HST station, as identified in the Statewide Program EIR/EIS (Authority and FRA 2005). Station would be at-grade, with access and parking located along Nobel Drive. The station has easy access from the northbound I-805 freeway and reasonable access from the southbound I-805 freeway. Figure 3-90 shows an aerial view of the station area.

Figure 3-90: University City Station Rose Canyon Option



San Diego Station Alternative

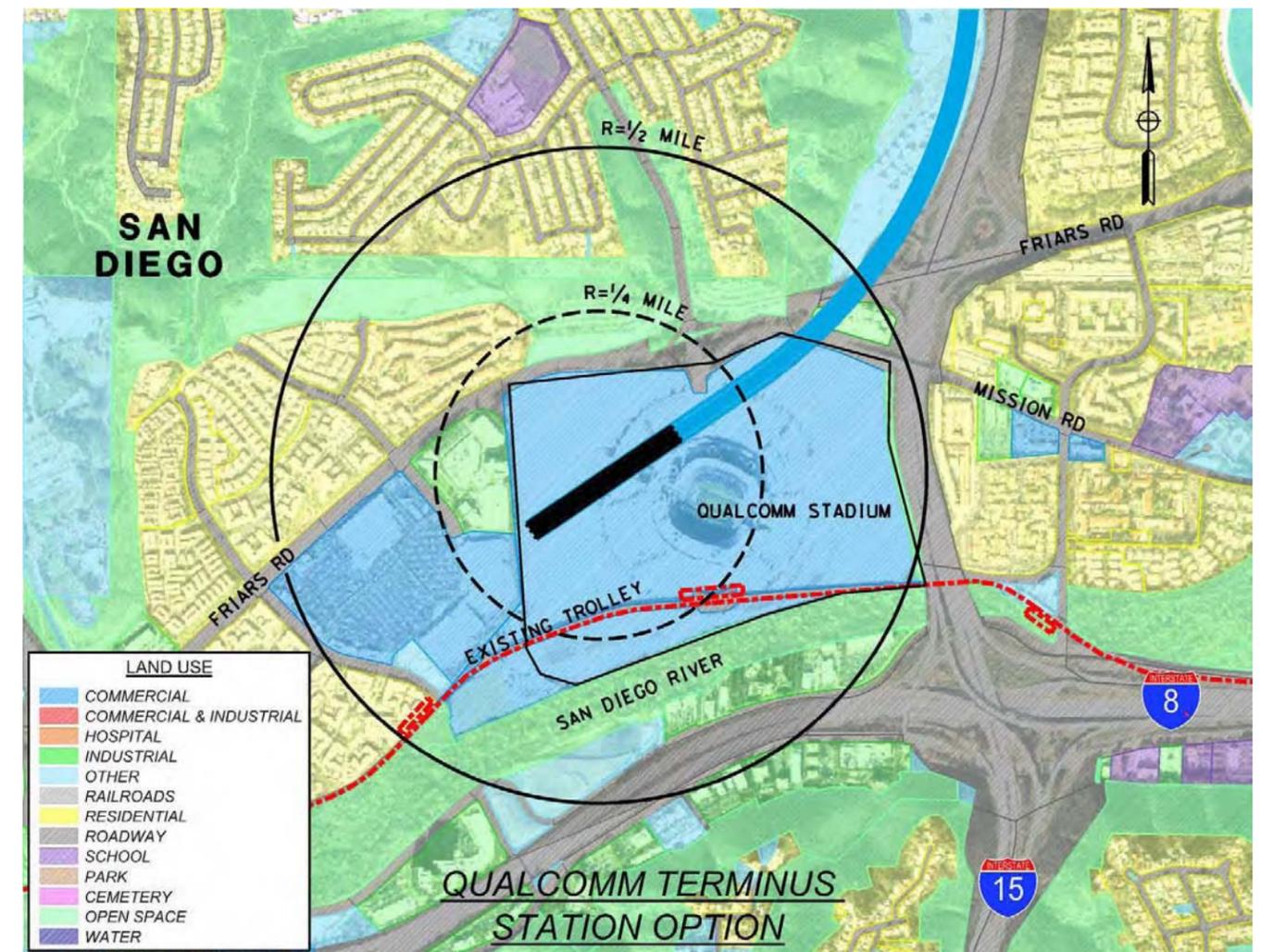
The San Diego Station Alternative consists of three station options. A single San Diego Alternative will be selected from the following station options.

Qualcomm Stadium Terminus Station Option

Alignment Alternative: S3-A5 (See Figure 3-52)

Description: The proposed station location is northwest of the interchange of the I-15 and I-8 freeways, in the parking area of Qualcomm Stadium, which is located to the north and west of the stadium. As a terminus station, the design includes three platforms and six tracks and is wider than a typical four-track/two-platform station. No tail tracks are provided because they would affect adjacent high-density commercial and residential development. As proposed, the elevated station has an intermodal connection with the San Diego Trolley and easy access from the I-15 and I-8 freeways. Figure 3-91 shows an aerial view of the station area.

Figure 3-91: Qualcomm Stadium Terminus Station Option



San Diego International Airport (SDIA) Station Option

Alignment Alternatives: All S3-A alignment alternatives except S3-A5 (See Figure 3-52)

Description: The proposed station location is adjacent to the LOSSAN corridor and the I-5 freeway, south of the Washington Street interchange and north of Sassafras Street. The station (design options include aerial, at-grade, and below-ground) is a key element of a planned downtown San Diego intermodal center, integrating the planned "Destination Lindbergh" airline terminal complex, intercity and commuter rail, the San Diego Trolley, local bus transit, and rental cars. As a terminus station, the design includes three platforms and six tracks and is wider than a typical four-track/two-platform station. No tail tracks are provided south of the station. Figure 3-92 shows an aerial view of the station area.

Downtown San Diego Station Option

Alignment Alternative: S3-B2 (See Figure 3-52)

Description: The proposed station location is east of Pacific Highway, between West Ash Street and West Broadway, adjacent to the Santa Fe Depot (downtown intermodal center serving Amtrak, commuter rail, and San Diego Trolley). As proposed, the station is underground or elevated, depending on alignment profile. As a terminus station, the design includes three platforms and six tracks and is wider than a typical four-track/two-platform station. No tail tracks are provided south of the station. Access from I-5 would require travel on several blocks of downtown city streets to reach station. Figure 3-93 shows an aerial view of the station area.

Figure 3-92: San Diego International Airport Station Option



Figure 3-93: Downtown San Diego Station Option



4.0 EVALUATION OF SUBSECTION ALIGNMENT ALTERNATIVES, STATION LOCATION OPTIONS AND DESIGN OPTIONS

The alignment alternatives, station locations and design options carried forward into the detailed alternatives analysis were assessed for each of the project objectives and evaluation measures. This information was then used to determine which alternatives should be recommended to be carried forward into preliminary engineering design and environmental review as part of the EIR/EIS. The alignment alternatives, station location, and design options recommended for continued evaluation were evaluated by using the measures and methods described in Chapter 2 (see Table 2-1 and Tables 2-2 through 2-6). The primary evaluation measures include the following:

- Design objectives (including measures such as travel time and cost)
- Land use (including measures such as consistency with land use plans and general plans)
- Constructability (including measures such as guideway type construction and access to the corridor)
- Community impacts (including measures such as area of impact by land use type)
- Natural resources (including measures such as impacts on wetlands, waterway crossings, potentially threatened and endangered species habitat, and impacts on preserves and parklands)
- Environmental quality (including measures such as impacts on sensitive receptors, visual resources, and geologic constraints)
- Additional considerations (including measures such as ability to meet project purpose and support by public and agencies)

The detailed evaluation of the subsection alignment alternatives is provided in the evaluation matrix in Appendix B and discussed in Section 4.1. Station options are evaluated in Section 4.2. Environmental constraints mapping used to assess the alternative alignments are included in Appendix F.

LA-SD Section Run Times /Ridership

The voter approved legislation establishing the Authority and project (Proposition 1A, 2008) established a maximum express travel time of no more that 1 hour and 20 minutes for service between Los Angeles and San Diego. Routing and design of the HST through the Inland Empire must meet this voter mandate. The travel time mandates were included in the legislation to ensure that the HST was truly high speed. As has been described throughout this Preliminary Alternatives Analysis the project team is working closely with the communities along the alignment to meet this required travel time, while maximizing compatibility with the communities and surrounding environment. Based on the designs included in Appendix A travel times have been calculated for the various alignment alternatives in this section. These travel times are shown in Figures 4-1 and 4-2.

Currently the longest run time between LAUS and SDIA is approximately 1 hour and 27 minutes, 7 minutes above the voter mandated maximum time. The fastest run time is 1 hour and 5 minutes between LAUS and SDIA. There are many permutations of times between those depending on the way the various subsection alignments are combined. These run times are not currently being used to, in and of themselves, eliminate alignments. This information is being presented to allow an understanding of the travel time trade-offs that will ultimately be a criteria to evaluate the ultimate alignment through the Inland Empire.

Ridership is also not used at this time to evaluate alignment alternatives. Ridership will be refined throughout the next phases of the project and will be used to evaluate the effectiveness of the various potential alignments.

Figure 4-1: LA-SD Runtime Summary - All Alignment Alternatives

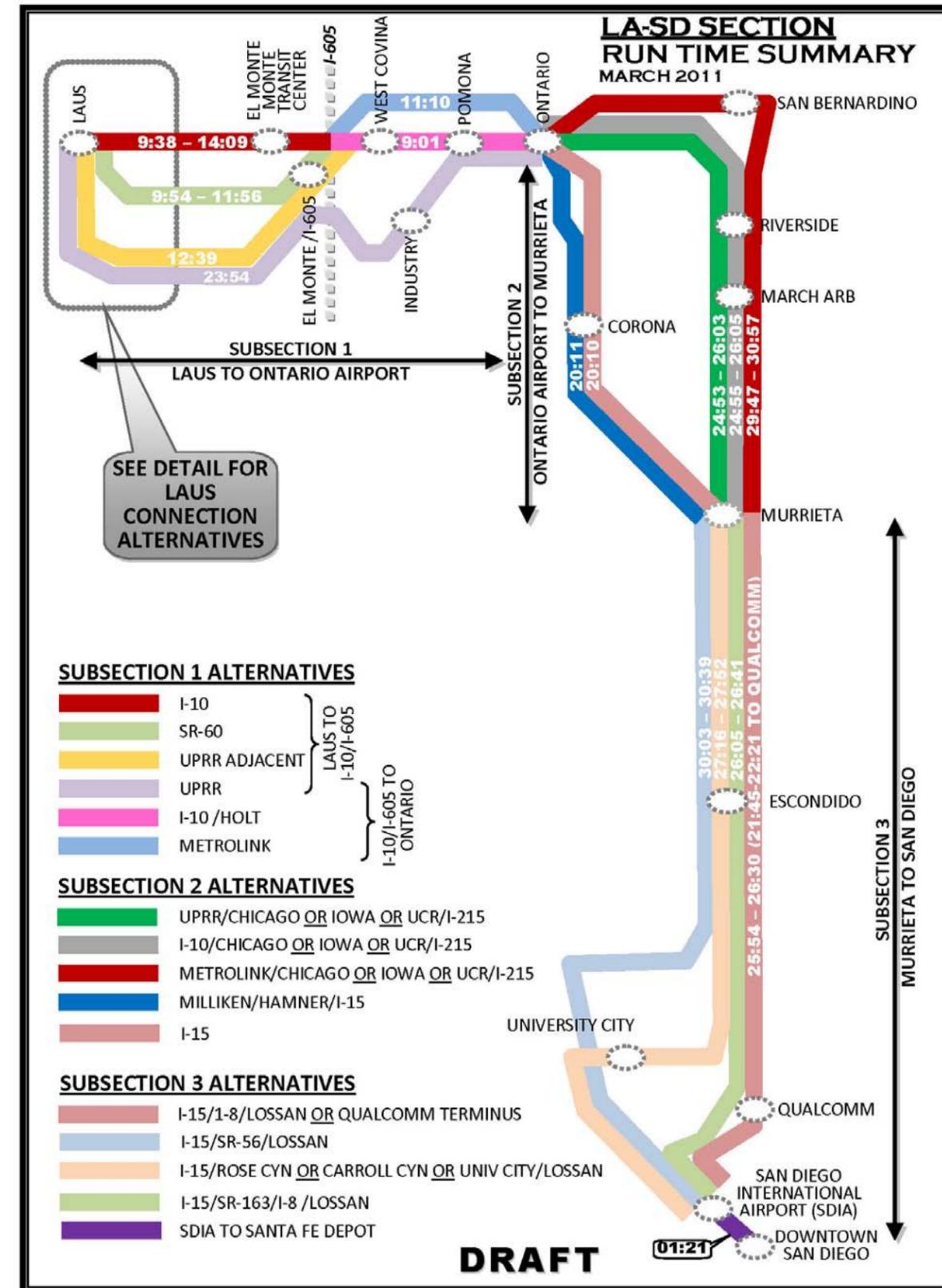
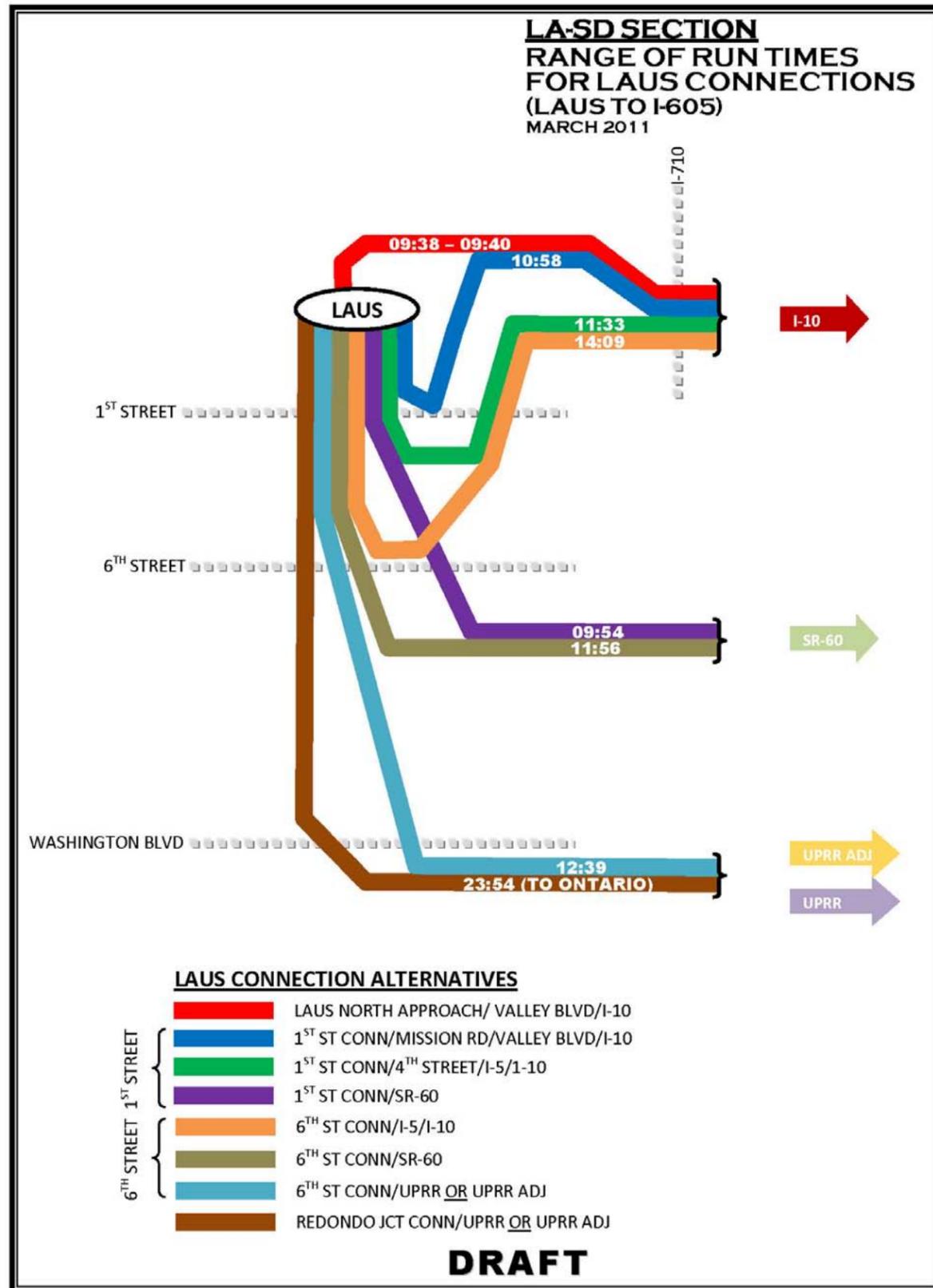


Figure 4-2: LA-SD Runtime Summary – LAUS Connection Alternatives



4.1 Evaluation of Alignment Alternatives

4.1.1 LAUS to Ontario International Airport (ONT) Subsection (S1)

Alignment Alternatives

LAUS to I-605/I-10

As described in Chapter 3, Section 3.3.3, seven alignment alternatives (A1 through A7) are evaluated in Subsection 1 that combine to connect LAUS and the Ontario International Airport. Three of these alignments include alternative approach alignments within the primary alignment. Four of the primary alignment alternatives (A1 through A4) connect LAUS to the area near the I-605/I-10 junction (or the City of Industry for the UPRR alignment, Figure 4-1). Three of the primary alignments (A5 through A7) then connect farther east from the I-605/I-10 junction (or the City of Industry for the UPRR alignment) to the Ontario International Airport (Figure 4-2).

The I-10 alternative alignment was developed following agency and stakeholder input during the scoping process and is the northernmost connection to LAUS. A variation of this alternative was studied in the Statewide Program EIR/EIS. It was not carried forward in the 2005 Program EIR/EIS because of constructability issues with the LAUS connection. However, after more detailed engineering work, feasible connections to LAUS have been identified and are described below. This alternative alignment meets the Authority's goals of following existing transportation corridors to the greatest extent possible, as stated in the purpose and need statement. There are nine LAUS approach alternatives connecting to I-10 (i.e., North above-grade approach, two North below-grade approaches, Mission Road above-grade approach, Mission Road below-grade approach, I-5/1st Street above-grade approach, I-5/1st Street below-grade approach, I-5/6th Street above-grade approach, and I-5/6th Street below-grade approach). Figure 3-9 in Chapter 3 illustrates the nine LAUS approaches. As shown in the environmental constraint maps (Appendix F), the S1-A1 alternative, including all nine of the LAUS connections, would cross the LA River. This area is part of the LA River Revitalization Master Plan and is within the Downtown Industrial Area revitalization concept of the plan. The plan envisions the creation of parks at the eastern connection of the LA River with the Boyle Heights community. There are also plans to enhance and/or restore the LA River, including the LA River Ecosystem Restoration Project. The S1-A1 options could conflict with these planned revitalization and restoration efforts because all nine alignments have a substantial affect on waterways and related resources.

The I-10 alignment is generally straighter than SR 60 or the UPRR, allowing for options that let HSTs operate at higher speeds and provide improved HST operations. Local communities' concerns regarding this alternative alignment include potential noise impacts, visual impacts, and inherent property dislocation impacts. Community stakeholders and elected officials who have participated in project briefings recommended a below-grade alignment through the communities immediately east of LAUS and potential points farther east, because of the dense residential character of this area immediately adjacent to I-10. In its letter dated August 17, 2010, the San Gabriel Valley Council of Governments staff indicated its opposition to having the alignment deviate from the I-10 freeway ROW. Furthermore, local cities including Alhambra, San Gabriel, and Rosemead have communicated through their participation with the SGVCOG HST Working Group an interest in a trench or underground configuration for the alternative within the freeway ROW. Specific letters from Alhambra (dated August 16, 2010) and Rosemead (dated September 28, 2010) have been received expressing serious concerns over potential property impacts and noise/vibration issues.

The presence of the existing Metrolink line in the median of I-10 may require relocation of this service during construction; potentially, the relocation would be permanent. Preliminary discussions have been held with Metro and Metrolink regarding the potential to relocate Metrolink to the north of I-10, to the Alhambra Subdivision of the UPRR. The Alameda Corridor East (ACE) project is working to develop grade separation projects on this section of the UPRR and preliminary discussions have included ACE staff. One issue will be maintaining service to the Cal State – Los Angeles Metrolink station immediately west of I-710. Further discussions with all affected parties, including UPRR, are needed to determine the feasibility of relocating Metrolink during the construction of HST project in the I-10 corridor.

North Approach Operations

For the options where the LA-SD alignment enters LAUS from the north, there are operational and power/propulsion system issues to consider. Tables 4-1 and 4-2 depict the HST movements at LAUS during the peak period in the horizon year, 2035. During this peak period, 11 trains, 8 from San Francisco and 3 from Sacramento, would enter LAUS from the north. Of these 11 trains, 3 turn in the station to return north, 3 run through to Anaheim, and 5 run through to San Diego. There would be seven trains approaching LAUS from San Diego, with two of those turning in the station to return to San Diego and five running through to go north to either San Francisco or Sacramento.

Table 4-1 depicts HST movements if the LA-SD section approaches LAUS from the south, while Table 4-2 depicts HST movements if the LA-SD section approaches LAUS from the north. As noted, the northern approach induces an imbalance in the operations around LAUS, with six trains entering from the north for every one that enters from the south. In addition, this operational imbalance creates issues for the propulsion system. Current plans for the propulsion system will support up to 12 HSTs per hour in each direction within any particular guideway section. As shown in Table 4-2, the northern approach would have as many as 18 HSTs per hour in each direction.

Table 4-1: Southern Approach to LAUS for LA-SD

HST Operation	From North	From South	Notes
Arriving LAUS from the north	11	10	Arriving LAUS from the south
Run through (from San Francisco or Sacramento) to San Diego	5	5	Run through (from San Diego) to San Francisco or Sacramento
Run through (from San Francisco or Sacramento) to Anaheim	3	3	Run through (from Anaheim) to San Francisco or Sacramento
Turnaround to San Francisco or Sacramento	3	2	Turnaround (from San Diego) to San Diego
Total number of HSTs processed in LAUS per hour during the peak	11	10	21

Table 4-2: Northern Approach to LAUS for LA-SD

HST Operation	From North	From South	Notes
Arriving LAUS from the north	18	3	Arriving LAUS from the south
Turnaround (from San Francisco or Sacramento) to San Diego	5	0	Run through (from San Diego) to San Francisco or Sacramento
Run Through (from San Francisco or Sacramento) to Anaheim	3	3	Run through (from Anaheim) to San Francisco or Sacramento
Turnaround to San Francisco or Sacramento	3	0	Turnaround (from San Diego) to San Diego
Turnaround (from San Diego) to San Francisco or Sacramento	5		
Turnaround (from San Diego) to San Diego	2		
Total number of HSTs processed in LAUS per hour during the peak	18	3	21

LAUS to I-605/I-10 via I-10

I-10 via North above-grade approach (S1-A1.1)

The S1-A1.1 LAUS approach includes elevated structures that may reach 50 feet in height. The above-grade guideway placement along Main Street, Valley Boulevard, and I-10 would be located close to sensitive receptors including residential areas, schools, and hospitals and would result in a high level of visual affect. This design alternative could affect 33 acres of residential uses and 19 parcels with sensitive receptors (e.g., schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 226 hazardous material sites and would affect 4 acres of wetlands and 1,495 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via North below-grade approach (S1-A1.2.1)

The S1-A1.2.1 LAUS approach includes a below-grade approach that would result in fewer visual and noise disruptions to the community. The S1-A1.2.1 alignment could affect 31 acres of residential uses and 15 sensitive receptor parcels. Furthermore, this alignment crosses 205 hazardous materials sites and would affect 4 acres of wetlands and 1,287 linear feet of waterways. The alignment would require five new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via North below-grade approach (S1-A1.2.2)

The S1-A1.2.2 LAUS approach includes a below-grade approach that would result in fewer visual and noise disruptions to the community. The S1-A1.2.2 alignment could affect 31 acres of residential uses and 15 sensitive receptor parcels. Furthermore, this alignment crosses 190 hazardous materials sites and would affect 4 acres of wetlands and 1,287 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via Mission Road above-grade approach (S1-A1.3)

The S1-A1.3 LAUS approach also includes elevated structures that may reach 50 feet in height. The above-grade guideway placement along I-10 would be located near sensitive receptors including residential areas, schools, and hospitals and would result in a high level of visual affect. This design option could affect 34 acres of residential uses and 19 parcels with sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 228 hazardous materials sites and would affect 4 acres of wetlands and 1,500 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via Mission Road below-grade approach (S1-A1.4)

The S1-A1.4 LAUS approach includes a below-grade alignment that would result in fewer visual and noise disruptions to the community. The S1-A1.4 alignment could affect 33 acres of residential uses and 20 sensitive receptor parcels. Furthermore, this alignment crosses 184 hazardous materials sites and would affect 4 acres of wetlands and 1,500 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via I-5/1st Street above-grade approach (S1-A1.5)

The S1-A1.5 LAUS approach also includes elevated structures that may reach 50 feet in height. The above-grade guideway placement along I-10 would be located near sensitive receptors including residential areas, schools, and hospitals and would result in a high level of visual affect. This design option could affect 49 acres of residential uses and 28 parcels with sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 230 hazardous materials sites and would affect 6 acres of wetlands and 1,851 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via I-5/1st Street below-grade approach (S1-A1.6)

The S1-A1.6 LAUS approach includes a below-grade alignment that would result in fewer visual and noise disruptions to the community. The S1-A1.6 alignment could affect 31 acres of residential uses and 16 sensitive receptor parcels. Furthermore, this alignment crosses 195 hazardous materials sites and would affect 6 acres of wetlands and 1,851 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

I-10 via I-5/6th Street above-grade approach (S1-A1.7)

The S1-A1.7 LAUS approach includes elevated structures that may reach 50 feet in height. The above-grade guideway placement along I-10 would be located near sensitive receptors including residential areas, schools, and hospitals and would result in a high level of visual affect. This design option could affect 48 acres of residential uses and 30 parcels with sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 190 hazardous materials sites and would affect 7 acres of wetlands and 2,648 linear feet of waterways. The alignment would require seven new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

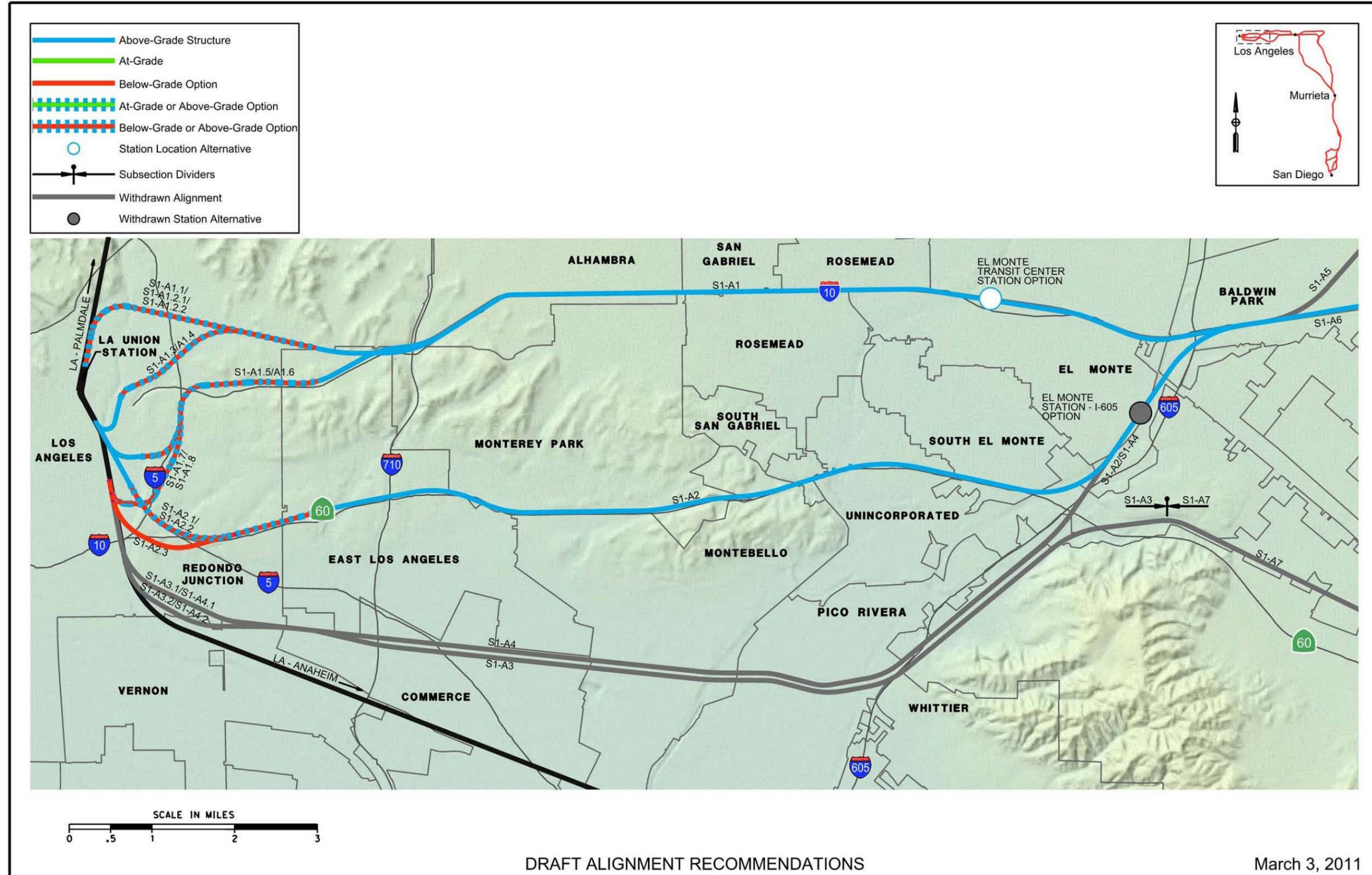
I-10 via I-5/6th Street below-grade approach (S1-A1.8)

The S1-A1.8 LAUS approach includes a below-grade alignment that would result in fewer visual and noise disruptions to the community. The S1-A1.8 alignment could affect 44 acres of residential uses and 23 parcels with sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 207 hazardous materials sites and would affect 4 acres of wetlands and 1,287 lineal feet of waterways. The alignment would require five new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers.

Until issues regarding the design of Union Station are resolved and further engineering and environmental evaluation is completed, this connection is recommended to be **carried forward for further evaluation**.

In summary, although there are engineering and environmental challenges associated with all of the S1-A1 alignment alternatives, the I-10 corridor has the potential for higher speeds than the S1-A2 SR 60, S1-A3 UPRR and S1-A4 UPRR adjacent alternatives. The presence of the existing Metrolink track in the center of I-10 from I-710 to El Monte provides a unique opportunity to develop this section of I-10 as a true multimodal transportation corridor. However, significant coordination and local planning must continue with SGVCOG and the affected cities along I-10 to define a feasible and acceptable alternative in this pivotal area of the LA-SD Section. Figure 4-3 summarizes the recommendation graphically.

Figure 4-3: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 1 (LAUS to I-605)



DRAFT ALIGNMENT RECOMMENDATIONS

March 3, 2011

LAUS to I-605 via SR 60 (Alternative S1-A2)

The alternative alignments along SR 60 may affect the most natural resources. These alignments would extend near designated critical habitat for the California gnatcatcher in the Whittier Narrows and Montebello region. The alignments would also affect a U.S EPA superfund site and major utility crossings including capped and active oil wells and Southern California Edison tower facilities. They would also result in high visual impacts where the HST guideway would traverse Whittier Narrows Regional Park and along the SR 60/I-710, where an elevated guideway would extend approximately 120 feet in height. Future planned transportation projects along this alternative alignment would limit the availability of ROW. The proposed projects include the Metro Gold Line LRT Phase 2 Project, Caltrans carpool lanes, and a goods movement (truck lane) program (SCAG). The SR 60 Coalition, a group of local cities and elected officials along SR 60, is actively pursuing the Metro Gold Line LRT project and does not support a HST alternative along this corridor. The geometrics of SR 60 would require multiple skewed crossings of the freeway in order to achieve even the lowest desirable speeds for the HSTs.

The staff of the cities of Montebello, Monterey Park, and South El Monte have raised concerns regarding the impacts of this alignment on the local communities, including noise/vibration, community cohesion, traffic, safety, visual, construction, and impacts on local parks, schools, and housing. Regional transportation agencies recommend additional analysis on the SR 60 corridor.

SR 60 via First Street above grade approach (S1-A2.1)

The S1-A2.1 above-grade alternative would have the highest community and natural resource impacts when compared to the other S1-A2 alignments. This design option could affect 61 acres of residential uses and 13 parcels with sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 126 hazardous materials sites and would affect 30 acres of wetlands and 2,868 linear feet of waterways. The alignment would require five new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers. The S1-A2 alignments both result in substantially higher impact on parklands – 22 acres – than the other alignments between LAUS and the I-10/I-605. Until further engineering and environmental studies can be completed for the SR 60 and I-10 alignments and the evaluation of the Union Station alternatives is completed, this alignment alternative and LAUS connection is recommended to be **carried forward for further evaluation** because it may provide better connectivity to LAUS.

SR 60 via First Street below-grade approach (S1-A2.2)

The S1-A2.2 below-grade alternative would have the same or slightly lower impacts when compared to the other S1-A2 alignments. It would affect 48 acres of residential uses and nine parcels of sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 99 hazardous materials sites and would affect 30 acres of wetlands and 2,868 linear feet of waterways. The alignment would require five new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers. As noted above, the S1-A2 alignments result in substantially higher levels of impact on parklands – 22 acres – than the other alignments between LAUS and the I-10/I-605. Until further engineering and environmental studies can be completed for the SR 60 and I-10 alignments and the evaluation of the Union Station alternatives is completed, this alignment alternative and LAUS connection is recommended to be **carried forward for further evaluation** because it may provide better connectivity to LAUS.

SR 60 via Sixth Street below-grade approach (S1-A2.3)

The S1-A2.3 below-grade alternative would have a moderate level of impact when compared to the other S1-A2 alignment alternatives. It would affect 57 acres of residential uses and nine parcels of sensitive receptors (schools, hospitals, libraries, and places of worship). Furthermore, this alignment crosses 68 hazardous materials sites and would affect 27 acres of wetlands and 2,281 linear feet of waterways. The alignment would require four new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers. The S1-A2 alignments also result in substantially higher levels of impacts on parklands – 22 acres – than the other alignments between LAUS and the I-10/I-605. Until further engineering and environmental studies can be completed for the SR 60 and I-10 alignments and the evaluation of the Union Station alternatives is completed, this alignment alternative and LAUS connection is recommended to be **carried forward for further evaluation** because it may provide better connectivity to LAUS.

Figure 4-3 summarizes the recommendations.

LAUS to East of I-605 via UPRR (Alternative S1-A3)

There are two approach alignments linking S1-A3 to LAUS. For this UPRR alternative, the Gateway Cities Council of Governments is not supportive, citing impacts on local residents and businesses through this dense urban corridor. The cities of Vernon, Montebello, and Pico Rivera have further communicated these specific concerns in their correspondence to the Authority dated August 26, 2010 (Vernon), October 13, 2010 (Vernon), May 25, 2010 (Montebello) and June 14, 2010 (Pico Rivera).

The UPRR has expressed strong concerns regarding the potential disruption of existing and future railroad operations. This particular section of the UPRR system is a vital route for Pacific Rim containers out of the ports of Los Angeles and Long Beach. Major rail shippers are located along the UPRR alignment between central Los Angeles and Colton. Placement of the HST alignment would disrupt the UPRR's ability to serve existing and future shippers and would result in operating constraints. In a letter dated November 23, 2009, the UPRR stated that "the successful operation and growth of the ports at Los Angeles and Long Beach is directly tied to our ability to move containers over these subdivisions. Our capacity is already constrained during periods of normal traffic growth. We must reserve all of our rights of way for future capacity expansion. There is simply no room for high speed on these lines." The UPRR notes that any use of this corridor is subject to the Federal Surface Transportation Board regulations relative to the maintenance of freight services. In addition, the geometrics of the UPRR alignments result in highly constrained geometry through Pico Rivera that would limit HST speeds to less than 70 mph.

LAUS to east of I-605 via UPRR via Sixth Street below-grade approach (S1-A3.1)

This alignment would affect 53 acres of residential uses, 119 acres of industrial uses, and two sensitive receptor parcels. Furthermore, this alignment crosses 112 hazardous materials sites and would affect 3 acres of wetlands and 453 linear feet of waterways. The alignment would require two new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers. The cities of Vernon and Pico Rivera and the Gateway Cities COG oppose the UPRR alignment because of potential noise and visual impacts. Because of the severity of impacts on surrounding properties, permanent constraints on the future capacity of UPRR, and constrained geometrics for HST operations, S1-A3.1 is determined to be impracticable and is recommended to be **withdrawn from further consideration**.

LAUS to east of I-605 via UPRR via Redondo Junction above-grade approach (S1-A3.2)

This alignment would affect 53 acres of residential uses, 126 acres of industrial uses, and two sensitive receptor parcels. Furthermore, this alignment crosses 152 hazardous materials sites and would affect 6 acres of wetlands and 1,525 linear feet of waterways. The alignment would require three new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers. The Cities of Vernon and Pico Rivera and the Gateway Cities COG oppose the UPRR alignment because of potential noise and visual impacts. Because of the severity of impacts on surrounding properties, permanent constraints to the future capacity of UPRR, and constrained geometrics for HST operations, S1-A3.2 is determined to be impracticable and is recommended to be **withdrawn from further consideration**.

Figure 4-3 summarizes these recommendations.

LAUS to I-605 via UPRR Adjacent (Alternative S1-A4)

This alternative is a variation of the UPRR alignment because it places the HST guideway adjacent to and outside of the UPRR ROW. The UPRR has expressed objection to the UPRR adjacent alignments as well, noting that several of the industrial uses adjacent to the UPRR ROW in this area have shipper's rights. Acquisition of these businesses could result in abandonment of their shipper's rights, which could affect UPRR freight operations. For this UPRR adjacent alternative, the Gateway Cities COG is directly opposed to this alternative citing significant impacts on local residents and businesses through this dense urban corridor. This alignment has the highest land use incompatibility within this subsection, with greater impacts on the land uses outside of the existing rail right-of-way in land designated for residential, commercial, park, industrial, or other uses. In the same correspondence mentioned above, the cities of Vernon, Montebello, and Pico Rivera also express opposition to this alternative. Similar to S1-A3, the geometrics would be constrained through Pico Rivera, limiting HST speeds to less than 70 mph.

LAUS to I-605 via land adjacent to UPRR via Sixth Street below-grade approach (S1-A4.1)

This alternative would result in a high level of impacts on communities and would affect 75 acres of residential uses, 125 acres of industrial uses, and two sensitive receptor parcels. This is the highest level of impact on residential uses and second highest impact on UPRR-related industrial uses in this corridor. Furthermore, this alignment crosses 129 hazardous materials sites and would affect 20 acres of wetlands and 2,132 linear feet of waterways. The alignment would require five new waterway bridge crossings associated with the Los Angeles, Rio Hondo, and San Gabriel Rivers. The geometrics of the UPRR alignment results in highly constrained geometry through Pico Rivera that would limit HST speeds to less than 70 mph. The City of Pico Rivera expressed opposition to an alignment that would require larger radius curves and deviated away from the existing railroad alignment. Because of the severity of impacts on surrounding properties and constrained geometrics for HST operations, S1-A4.1 is determined to be impracticable and is recommended to be **withdrawn from further consideration**.

LAUS to I-605 via land adjacent to UPRR via Redondo Junction above-grade approach (S1-A4.2)

This alternative would result in a high level of impacts on communities and would affect 75 acres of residential uses, 132 acres of industrial uses, and two sensitive receptor parcels, with the highest level of impact on residential and UPRR-related industrial uses. Impacts on natural resources are moderate in comparison to the other alternatives through the LAUS to I-605 corridor. Furthermore, this alignment crosses 169 hazardous materials sites and would affect 22 acres of wetlands and 3,204 linear feet of waterways. The alignment would potentially require six new waterway bridge crossings in association with the Los Angeles, Rio Hondo, and San Gabriel Rivers. The geometrics of the UPRR alignment result in highly constrained geometry through Pico Rivera that would limit HST speeds to less than 70 mph. The City of Pico Rivera expressed opposition to an alignment that provided larger radius curves but deviated from the existing railroad alignment. Because of the severity of impacts on surrounding properties and constrained geometrics for HST operations, S1-A4.2 is determined to be impracticable and is recommended to be **withdrawn from further consideration**.

Figure 4-3 summarizes this recommendation.

I-605/I-10 to Ontario International Airport Alignment Alternatives

I-605/I-10 to Ontario International Airport via Metrolink (Alternative S1-A5)

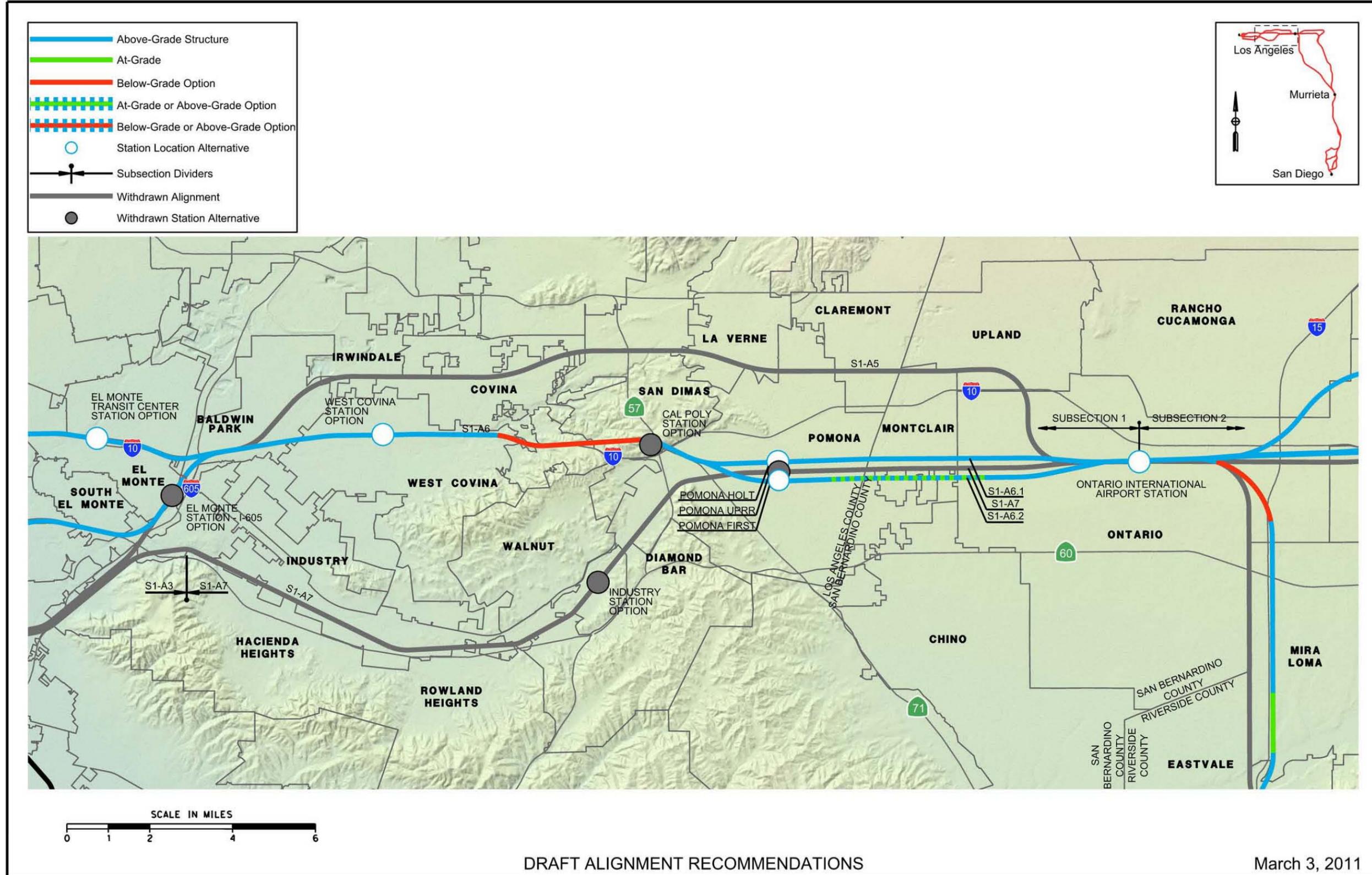
Within the I-605 to Ontario Airport via Metrolink corridor, this alignment has the highest potential to disrupt local communities. It would affect 215 acres of residential uses, 116 acres of industrial uses, and 35 sensitive receptor parcels. Furthermore, this alignment crosses 82 hazardous materials sites and would affect 1 acre of wetlands and 1,772 linear feet of waterways. The alignment would require seven new waterway bridge crossings associated with minor drainage channels.

The Metrolink alternative is not supported by affected local cities including La Verne, San Dimas, and the City of Covina. Correspondence from these cities dated August 20, 2010, September 23, 2010, and September 30, 2010, respectively, has been received by the Authority

The alignment connection from the I-605/I-10 location to Ontario International Airport via the Metrolink ROW could affect historical resources and result in moderate visual impacts. The proposed placement of the HST guideway on local surface streets (e.g., Euclid Avenue) would traverse a historical district through the City of Ontario. This alignment would adversely affect Metrolink operations because of the limited 50-foot-wide ROW along portions of the corridor. In the eastern portion of the corridor where the ROW is 100 feet wide, there will be insufficient space for the HST because the Goldline LRT is expected to operate alongside Metrolink, making the alignment impracticable. The alignment would require reverse curves that together with existing Metrolink alignment curves would hamper the speed of the HST, resulting in undesirable operations. The S1-A5 alignment alternative is impracticable because of the Metrolink ROW constraints and is recommended to be **withdrawn from further consideration**.

Figure 4-4 reflects this recommendation.

Figure 4-4: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 1
 (I-605 to Ontario International Airport)



I-605 to Ontario International Airport via I-10/Holt (Alternative S1-A6)

Placement of the HST guideway in the median of I-10 through Baldwin Park and West Covina will require widening of the freeway on the outside to create space within the median for columns. Caltrans is already working on plans to add HOV lanes to this section of I-10, and they will be using most of the available ROW for this. Further analysis is required to determine if design exceptions may be needed to place the HST guideway columns in the median of the freeway. The transitions in and out of the freeway median will require outrigger systems, which can be complicated and costly to construct and visually unattractive.

Locating a tunnel portal at the east end of West Covina will be difficult and will require further study. Alignment criteria require 66-foot-long guideway center spacing for twin-bored tunnels, which results in an overall tunnel portal width of approximately 150 feet. Creating this much space for a tunnel portal, with its associated facilities for emergency access and the approach alignments leading into the tunnel, will require acquisition of the ROW wherever the portal is located. In a highly developed urban area, this represents a significant design challenge. Similar issues will need to be addressed at the eastern tunnel portal location in Pomona.

The tunnel alignment through the San Jose Hills has been developed to avoid the Forest Lawn Memorial Park cemetery property. A more favorable tunnel alignment from a geometric standpoint can probably be achieved if the alignment is allowed to pass underneath the cemetery property. However, the state of California does not have eminent domain authority over cemeteries, and the alignment is currently designed to avoid the cemetery property. Further discussions with the cemetery owners are needed to determine if it would be acceptable to have a tunnel that passes underneath the cemetery property.

Furthermore, the Authority has received correspondence from the cities of West Covina and Pomona in support of this alternative and the candidate station locations in their respective cities provided further planning is coordinated with each city. In its letter dated May 28, 2010, the City of West Covina expressed concern about impacts on its current office buildings (included city hall), parking structures, and future development. The City of Pomona defined local issues of concern and expressed an interest in exploring other ideas to maximize its regional location for an HST station and benefit to the local community in its letter dated November 10, 2010. Within the section between Pomona and Ontario, there are two approach alignment alternatives, which are discussed below.

Holt Boulevard above-grade approach (S1-A6.1)

The S1-A6.1 approach alternative would include an above-grade guideway along Holt Boulevard, resulting in potential high visual impacts through this urban corridor. The S1-A6.1 could affect 35 acres of residential uses, 195 acres of commercial uses, and 22 sensitive receptor parcels. Furthermore, this alignment crosses 78 hazardous materials sites and would affect 1 acre of wetlands and 970 linear feet of waterways. The alignment would require four new waterway bridge crossings associated with minor drainage channels. The City of Montclair has expressed opposition to an above-grade alignment along Holt Boulevard and is concerned about the potential noise and visual impacts and potential conflicts with planned and future planning efforts that may occur with the alignment. Although there are engineering challenges, this alignment allows for more efficient operation than the S1-A5 Metrolink and S1-A7 UPRR alternatives. The I-10 alignment is potentially the only practicable alignment between I-605 and Ontario International Airport; therefore, the S1-A6.1 alternative is recommended to be **carried forward for further evaluation** to allow continued engineering and environmental evaluation of the issues noted above.

First Street / State Street above-grade or at-grade approach (S1-A6.2)

This approach alignment would either be on an aerial guideway above First Street and State Street or at ground level in the existing street right-of-way, requiring relocation of the local street. It would affect 54 acres of residential uses, 179 acres of commercial uses and 20 sensitive receptor parcels. Furthermore, this alignment crosses 114 hazardous materials sites and would affect less than 1 acre of wetlands and 1,433 linear feet of waterways. The alignment would require six new waterway bridge crossings associated with minor drainage channels. Further discussions are needed with the cities of Pomona, Montclair, and Ontario to identify an alignment through this area that can be supported by each of the three cities. Although there are engineering challenges, this alignment allows for more efficient operation than the S1-A5 Metrolink and S1-A7 UPRR alternatives. The I-10 alignment is potentially the only practicable alignment between I-605 and the Ontario International Airport; therefore, the S1-A6.2 alternative is

recommended to be **carried forward for further evaluation** to allow continued engineering and environmental evaluation of the issues noted above. Figure 4-4 reflects this recommendation.

UPRR from East of I-605 to Ontario International Airport (Alternative S1-A7)

This alignment would be within the UPRR ROW. Impacts on residential and commercial uses would be relatively low in comparison with the Metrolink and I-10/Holt Boulevard or I-10/First/State alternative alignments between I-605 to Ontario International Airport. The alignment would affect 22 acres of residential uses, 18 acres of commercial uses, 245 acres of industrial uses, and 13 sensitive receptor parcels. Furthermore, this alignment crosses 135 hazardous materials sites and would affect 4 acres of wetlands and 909 linear feet of waterways. The alignment would require three new waterway bridge crossings associated with minor drainage channels.

Similar to the S1-A3 UPRR alignment alternative, potential disruption to existing and future railroad operations is a major concern to UPRR in this critical freight corridor that accesses the ports of Los Angeles and Long Beach. Although environmental impacts may be lower for this alignment, the operational and capacity constraints in this corridor make it impracticable. The geometrics of the UPRR alignment through the City of Industry would potentially result in highly constrained geometry, which would limit HST design speeds. The City of Industry is not supportive of this alternative. Because of the severity of impacts on surrounding properties, permanent constraints to the future capacity of UPRR, and constrained geometrics for HST operations, S1-A7 is determined to be impracticable and is recommended to be **withdrawn from further consideration**.

4.1.2 Ontario International Airport to Murrieta/Temecula Subsection (S2)

As described in Chapter 3 there are four alignment alternatives evaluated in Subsection 2 that combine to connect Ontario International Airport to Murrieta/Temecula. Three of these alignment alternatives connect through San Bernardino and/or Riverside via the I-215 corridor, and one connects via the I-15 corridor, missing Riverside and San Bernardino. Within the three Riverside/San Bernardino alignment alternatives, there are three approach alignments through Riverside. The I-15 alignment alternative includes two approach alignments to Ontario International Airport.

The alternatives that traverse San Bernardino and Riverside counties connect major urban centers in the Inland Empire but also present two distinct corridors for the regional connection between the northern and southern part of the LA-SD Section: the I-15 and I-215 corridors. The City of Ontario, where Ontario International Airport is located, does not have a strong preference with regard to these two corridors; however, the I-215 appears to provide more flexibility to move the Ontario Station more easterly as the City of Ontario states in its letter to the Authority on August 11, 2010. The University of California, Riverside (UC-Riverside), in its letter dated June 4, 2010, continues to express strong support for the I-215 alternative, but it has concerns regarding the two potential station locations near the university campus along I-215. In their letters dated August 2, 2010, and August 16, 2010, the City of Riverside and the City of Moreno Valley, respectively, support the I-215 alternative over the I-15 alternative. Specifically, they support the station location at the March ARB, not the UC-Riverside locations. Along the I-15 corridor, the City of Corona and the Corona Chamber of Commerce have been supportive of the I-15 alternative.

The performance of the four alignment alternatives in Subsection 2 against the evaluation measures is described below. Figures 4-5 and 4-6 map each of these Subsection 2 alignments, showing the alignments and station options that are withdrawn from further consideration and those that are carried forward for further evaluation in the EIS/EIR.

Figure 4-5: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 2 (Ontario International Airport to North Riverside County)

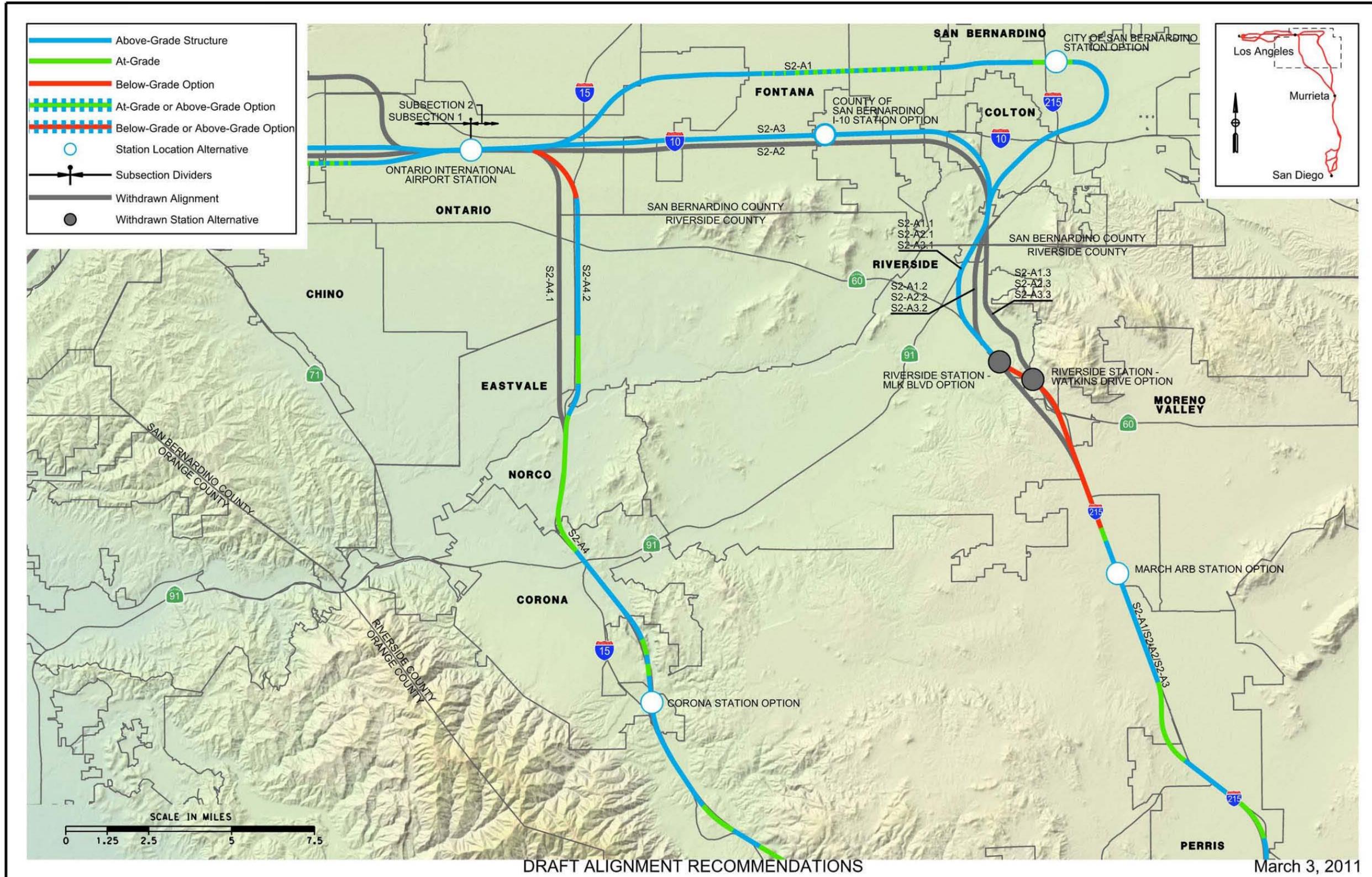
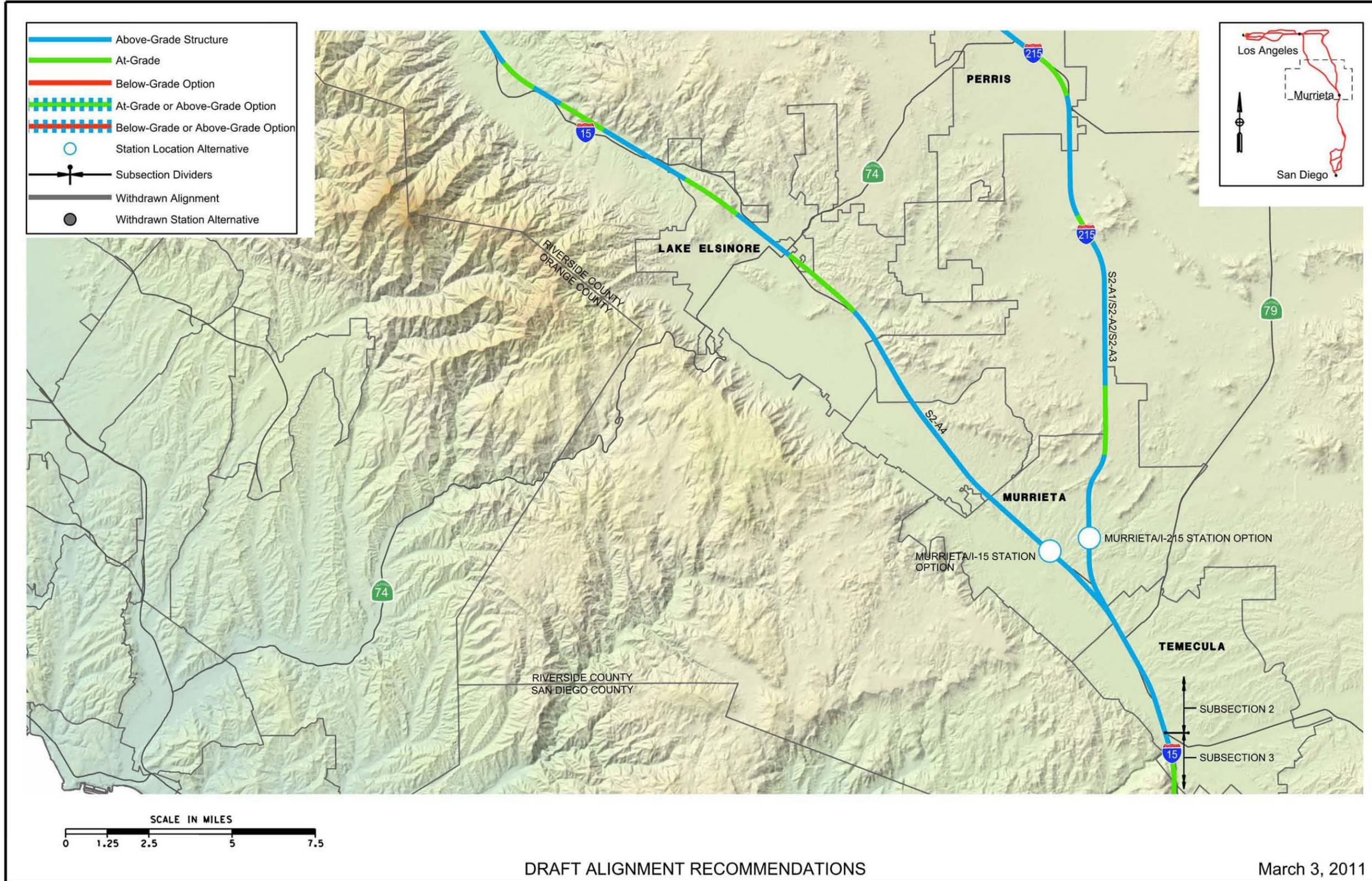


Figure 4-6: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 2 (North Riverside County to Murrieta/Temecula)



Alignment Alternatives

I-215 Alignments

These alignments all include extensive crossings of rivers, streams, and drainages including the Santa Ana River. These alignments also pass through the range of the Delhi Sands flower-loving fly. The United States Fish and Wildlife Service (USFWS) has expressed concern over the various river crossings where the alignment extends from Rialto to San Bernardino (letter date July 21, 2010). The river crossings would potentially affect designated critical habitat for the San Bernardino kangaroo rat, Santa Ana sucker, southwestern willow flycatcher, and the least Bell's vireo. The river is a wildlife movement corridor. Major utility crossings along the Santa Ana River include state water projects and major waterlines owned by the Western Municipal Water District and Metropolitan Water District (MWD).

Metrolink – I-215

San Bernardino/I-215 through Riverside via Chicago Avenue (S2-A1.1)

This alignment alternative would result in disruption to communities and natural resources including 177 residential acres, 33 sensitive receptor parcels, 88 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 247 acres of agricultural lands. The alignment would also affect 31,138 linear feet of waterway crossings and 19 acres of wetlands. Major utility crossings along the Santa Ana River include the state water projects and major waterlines owned by the Western Municipal Water District and MWD. The Chicago alignment alternative follows I-215 for more of its length in this alternative than in the other alignments through Riverside; therefore, it has fewer community impacts on Riverside and the UC-Riverside campus, and stakeholder input supports the Chicago alignment. Therefore, it is recommended that the S2-A1.1 alternative alignment be **carried forward for further evaluation**.

San Bernardino/I-215 through Riverside via Iowa Avenue (S2-A1.2)

This alignment alternative would result in disruption to communities and natural resources including 180 residential acres, 33 sensitive receptor parcels, 94 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 240 acres of agricultural lands. The alignment would also affect 33,126 linear feet of waterway crossings and 19 acres of wetlands. Major utility crossings along the Santa Ana River include the state water projects, major waterlines owned by the Western Municipal Water District and Metropolitan Water District (MWD). The Iowa Avenue alignment deviates from the I-215 corridor for a longer distance than the Chicago Avenue alignment. This results in a higher level of construction impacts on residential, commercial, and industrial properties, with no offsetting operational or construction benefits compared with the Chicago Avenue alternative. Therefore, related to high levels of construction impacts, the S2-A1.2 alternative alignment is recommended to be **withdrawn from further consideration**.

San Bernardino/I-215 through Riverside via UC Riverside (S2-A1.3)

This alignment alternative would result in disruption to communities and natural resources including 174 residential acres, 29 sensitive receptor parcels, 87 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 262 acres of agricultural lands. The alignment would also affect 30,799 linear feet of waterway crossings and 20 acres of wetlands. Major utility crossings along the Santa Ana River include the state water projects and major waterlines owned by the Western Municipal Water District and MWD. This alignment is not consistent with the UC-Riverside Master Plan and would result in high levels of impact to existing and planned facilities, and stakeholder input supports the Chicago Avenue alignment. Therefore, related to impacts to the existing and planned facilities at UC Riverside, it is recommended that the S2-A1.3 alternative alignment be **withdrawn from further consideration**.

UPRR – I-215

The UPRR has expressed strong concerns regarding the potential disruption of existing and future railroad operations. This particular section of the UPRR system is a vital route that provides for the movement of Pacific Rim containers out of the ports of Los Angeles and Long Beach. Major rail shippers are located along the UPRR alignment between central Los Angeles and Colton. Placement of the HSR alignment would disrupt the UPRR's ability to serve existing and future shippers and would result in operating constraints for the UPRR. In a letter dated November 23, 2009, the UPRR stated that "the successful operation and growth of the ports at Los Angeles and Long Beach is directly tied to

our ability to move containers over these subdivisions. Our capacity is already constrained during periods of normal traffic growth. We must reserve all of our rights of way for future capacity expansion. There is simply no room for high speed on these lines." The UPRR notes that any use of this corridor is subject to the Federal Surface Transportation Board regulations relative to the maintenance of freight services.

Riverside/I-215 through Riverside via Chicago Avenue (S2-A2.1)

This alignment alternative would result in disruption to communities and natural resources including 51 residential acres, 29 sensitive receptor parcels, 45 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 247 acres of agricultural lands. The alignment would also affect 24,318 linear feet of waterway crossings and 19 acres of wetlands. The Chicago alignment alternative follows I-215 for more of its length in this alternative than in the other alignments through Riverside; therefore, it has fewer community impacts on Riverside and the UC-Riverside campus. Stakeholder input supports the Chicago alignment. This alignment would affect the operations of the existing UPRR Colton Yard. Major utility crossings along the Santa Ana River include the state water projects and major waterlines owned by the Western Municipal Water District and MWD. Because of the impracticability of using the UPRR ROW, it is recommended that the S2-A2.1 alternative alignment be **withdrawn from further consideration**.

Riverside/I-215 through Riverside via Iowa Avenue (S2-A2.2)

This alignment alternative would result in disruption to communities and natural resources including 54 residential acres, 26 sensitive receptor parcels, 51 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands and 240 acres of agricultural lands. The alignment would also affect 26,306 linear feet of waterway crossings and 19 acres of wetlands. This alignment follows an urban arterial, resulting in greater community impacts in Riverside. This alignment would affect the operations of the existing UPRR Colton Yard. Major utility crossings along the Santa Ana River include the state water projects and major waterlines owned by the Western Municipal Water District and MWD. Because of the impracticability of using the UPRR ROW, it is recommended that the S2-A2.2 alternative alignment be **withdrawn from further consideration**.

Riverside/I-215 through Riverside via UC Riverside (S2-A2.3)

This alignment alternative would result in disruption to communities and natural resources including 47 residential acres, 25 sensitive receptor parcels, 43 acres of state and federally protected habitat and natural resources, 109 acres of habitat conservation plan lands and 262 acres of agricultural lands. The alignment would also affect 23,978 linear feet of waterway crossings and 20 acres of wetlands. This alignment is not consistent with UC-Riverside Master Plan. This alignment would affect the operations of the existing UPRR Colton Yard. Major utility crossings along the Santa Ana River include the state water projects, major waterlines owned by the Western Municipal Water District and Metropolitan Water District (MWD). Because of the impracticability of using the UPRR ROW, it is recommended that the S2-A2.3 alternative alignment be **withdrawn from further consideration**.

I-10 – I-215

I-10 through Riverside/I-215 via Chicago Avenue (S2-A3.1)

This alignment alternative would result in disruption to communities and natural resources including 63 residential acres, 30 sensitive receptor parcels, 39 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 247 acres of agricultural lands. The alignment would also affect 24,321 linear feet of waterway crossings and 19 acres of wetlands. Major utility crossings along the Santa Ana River include the state water projects and major waterlines owned by the Western Municipal Water District and MWD.

The Chicago alignment alternative follows I-215 for more of its length; therefore, it has fewer community impacts on Riverside and the UC-Riverside campus, and stakeholder input supports the Chicago alignment. Therefore, it is recommended that the S2-A3.1 alternative alignment be **carried forward for further evaluation**.

I-10 through Riverside/I-215 via Iowa Avenue (S2-A3.2)

This alignment alternative would result in disruption to communities and natural resources including 54 residential acres, 26 sensitive receptor parcels, 51 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 240 acres of agricultural lands. Major utility crossings along the Santa Ana River include

the state water projects, major waterlines owned by the Western Municipal Water District and MWD. The alignment would also affect 26,306 linear feet of waterway crossings and 19 acres of wetlands.

The Iowa Avenue alignment deviates from the I-215 corridor for a longer distance than the Chicago Avenue alignment. This results in a higher level of construction impacts on residential, commercial, and industrial properties, with no offsetting operational or construction benefits compared with the Chicago Avenue alternative. Therefore, related to high levels of construction impacts, the S2-A3.2 alternative alignment is recommended to be **withdrawn from further consideration**.

I-10 through Riverside/I-215 via UC Riverside (S2-A3.3)

This alignment alternative would result in disruption to communities and natural resources including 60 residential acres, 26 sensitive receptor parcels, 38 acres of state and federally protected habitat, 109 acres of habitat conservation plan lands, and 262 acres of agricultural lands. The alignment would also affect 23,981 linear feet of waterway crossings and 20 acres of wetlands. Major utility crossings along the Santa Ana River include the state water projects, major waterlines owned by the Western Municipal Water District and MWD.

This alignment is not consistent with the UC-Riverside Master Plan and would result in high levels of impact to existing and planned facilities, and stakeholder input supports the Chicago Avenue alignment. Therefore, related to impacts to the existing and planned facilities at UC Riverside, it is recommended that the S2-A3.3 alternative alignment be **withdrawn from further consideration**.

I-15 Alignments

I-15 Corridor (S2-A4)

This alignment extends in a southerly direction from Ontario International Airport along the I-15 corridor. Two approach alignments exist from the Ontario International Airport connection.

Milliken/Hamner to Corona and I-15 (S2-A4.1)

The S2-A4.1 approach alternative extends along local surface streets, Milliken Avenue and Hamner Avenue, on the west side of I-15. This approach alignment would affect 42 acres of residential uses, 31 acres of commercial uses, 21 sensitive receptor parcels, 240 acres of state and federally protected habitat, 428 acres of habitat conservation plan lands, and 161 acres of agricultural lands. The alignment would also affect 27,183 linear feet of waterway crossings and 37 acres of wetlands. The cities of Eastvale and Norco and Riverside County have expressed opposition to S2-A4.1 because it passes through residential land uses just north of the Santa Ana River. The S2-A4.1 would also affect an existing parcel conserved with Section 6(f) funds for the federally endangered Delhi Sands flower-loving fly. USFWS recommends avoidance of this parcel. Because of the impact on Section 6(f) conservation lands, it is recommended that the S2-A4.1 alternative alignment be **withdrawn from further consideration**.

I-15 to Corona (S2-A4.2)

This approach alignment would affect 55 acres of residential uses, 20 acres of commercial uses, 20 sensitive receptor parcels, 251 acres of state and federally protected habitat, 433 acres of habitat conservation plan lands, and 178 acres of agricultural lands. The alignment would also affect 27,202 linear feet of waterway crossings and 45 acres of wetlands.

Because this alignment does not affect Section 6(f) lands, it is recommended that the S2-A4.2 alternative alignment be **carried forward for further evaluation in the EIR/EIS**.

Common Alignment South of Norco

The City of Norco, much of which is zoned for rural and equestrian uses, has expressed concern over the I-15 alignment and its impact on the local community including noise, community character, historical resources, visual impacts, and impacts on local equestrian trails. A major utility consisting of a 230-kV transmission line is proposed along I-15 and may conflict with the alignment. The USFWS (Letter dated July 21, 2010) and RWQCB (Letter dated August 5, 2010) have expressed the most concern with the I-15 alignment from the San Bernardino/Riverside county line to the junction with I-215 because of substantial impacts on the Western Riverside County Multiple Species

Habitat Conservation Plan (MSHCP) core areas and the large number of tributaries and creek crossings along the Temescal Canyon-Lake Elsinore corridor.

South of the two approach alignments discussed above, the common alignment alternative extends along the I-15 ROW through the cities of Norco and Corona. South of SR 91, the alignment extends east of I-15 through MSHCP core areas, various creeks, habitat, and preserves. The RWQCB has expressed concern with potential creek crossings near Temescal Creek. Current native revegetation and riparian restoration efforts are underway near the Bedford Canyon Wash delta that may be affected by this proposed S2-A4 alignment. Potential habitat fragmentation could occur as the alignment extends through two proposed extensions of MSHCP core areas and crosses nine constrained linkages of the MSHCP. The alignment would affect designated critical habitat for least Bell's vireo and Santa Ana sucker, and could potentially affect wildlife connectivity along the Santa Ana River as well as state and federally listed sensitive plant species along the Santa Ana River. Established conservation areas for federally protected plant species could be affected by the I-15 alignment. The southern extension of I-15 into San Diego County traverses through the Santa Margarita Ecological Reserve. The S2-A4 alternative alignment would result in the greatest impact (compared to the S2-A1, S2-A2, and S2-A3 I-215 alternative alignments) on natural resources including 432 acres of MSHCP core areas and preserves and 250 acres of sensitive species habitat.

The S2-A4 alternative provides shorter travel times than the S2-A1, S2-A2, and S2-A3 alternatives for two reasons. One is that the alignment is approximately 7 miles shorter using the I-15 corridor as opposed to the I-215 corridor. The second is that there are opportunities for the use of larger radius curves along the I-15 if an alignment that is acceptable to the resource agencies can be achieved. However, the S2-A4 alternative does not provide a direct connection to the major Inland Empire population centers of Riverside and San Bernardino, which are also the county seats of their respective counties.

4.1.3 Murrieta/Temecula to San Diego Subsection (S3)

As described in Chapter 3, there are five alignment alternatives evaluated in Subsection 3 that combine to connect Murrieta/Temecula to San Diego. The alignment between Murrieta/Temecula and the SR 56 area is consistent for all five alignment alternatives. Within that portion of the alignment there are two options addressing alternative station locations in Escondido. The five alternatives south and west of SR 56 address different alignments between SR 56 and San Diego. In addition, four of those five alignment alternatives include an option to extend from the San Diego International Airport to a terminus at the Santa Fe Depot in Downtown San Diego.

The performance of the five alignment alternatives in Subsection 3 against the evaluation measures is described below. Figures 4-7 and 4-8 map each of these Subsection 3 alignments showing the alignments and station options that are withdrawn from further consideration and those that are carried forward for further evaluation in the EIS/EIR.

Alignment Alternatives

Common Alignment: Murrieta/Temecula to SR 56

From Murrieta/Temecula to SR 56 the LA-SD HST alignment has a common alignment through the I-15 corridor shared by all of the subsection alternatives except for the area between Country Club Lane and Via Rancho Parkway through the City of Escondido (S3-B1 described below). South of Murrieta/Temecula, the alignment passes the Santa Margarita Ecological Reserve, then crosses the Riverside/San Diego county line and continues south, immediately west of Rainbow. The resource agencies have expressed concern about this alignment and recommend redesigning the alignment to avoid impacts on the reserve. This area is characterized by rugged steep terrain and large open space areas, with rural communities along the corridor. Because of the topographical constraints, the alternative alignment deviates from the I-15 Caltrans ROW through unincorporated San Diego County lands in the communities of Rainbow and Fallbrook. Portions of the alignment are below-grade as it extends on the west side of the I-15 corridor. The alignment affects areas that are designated as a Pre-approved Mitigation Area (PAMA) in the draft San Diego North County Multiple Species Conservation Program (NCMSCP). This area also contains land designated by USFWS as critical habitat for threatened and endangered species including the California gnatcatcher. The proposed alignment would result in habitat fragmentation of these key PAMA areas, which form "stepping stones" of habitat for the gnatcatcher along I-15. The USFWS has expressed concern about the location of the alignment through this

region and recommends moving the alignment east of I-15 at the San Diego county line and then west in the Rainbow/Fallbrook area to avoid the PAMA.

The proposed below-grade alignment south of the San Luis Rey River would extend under a hill in the PAMA. The USFWS is concerned with potential dewatering of the groundwater table caused by below-grade construction in this location. Other key USFWS concerns in this area include maintaining connectivity of wildlife movement corridors along the I-15 corridor through Rice Canyon, San Luis Rey River, Gopher Canyon, and Moosa Creek; and completion of detailed geotechnical studies to avoid impacts on PAMA in the vicinity of potential below-grade alignments. The United States Army Corps of Engineers (USACE) recommends that crossings be designed with above-grade span bridges to avoid impacts on waters of the United States or to minimize the number and size of structures within waters of the United States.

In addition to concerns about biological resources, residents and local community planning groups from Rainbow and Fallbrook have expressed concern about potential visual impacts and community disruption through the unincorporated county lands. The I-15 corridor is a designated scenic corridor. Future plans in the I-15 corridor include residential and public education facilities and establishment of mitigation lands associated with realignment of SR 76.

This common alignment is included in the evaluation of each alternative alignment below.

Alignments South of SR 56

Murrieta/Temecula to San Diego International Airport (SDIA) via SR 56 and LOSSAN Corridor (Alternative S3-A1)

This alignment alternative utilizes the common route described above and then turns westerly on SR 56. This alignment alternative would have the greatest impact on residential uses (134 acres) and affect the greatest number of sensitive noise receptors (32 schools, libraries, hospitals and places of worship) of all the Murrieta/Temecula to San Diego alternatives. It would also have the highest impact on wetlands (36 acres), waterways (9,869 linear feet), new waterway bridge crossings (17), Habitat conservation plans (752 acres), state and federally protected habitat (401 acres), agricultural lands (99 acres) and parklands (113 acres). The alignment would affect Carmel Valley Creek, wildlife habitat (including the federally threatened coastal California gnatcatcher) and connectivity areas, vernal pools, and MHPA lands. In addition, the USACE (Letter dated August 13, 2010), USFWS (Letter dated July 21, 2010), and the California Coastal Commission (Letter dated July 15, 2010) have expressed concerns about the potential for this alignment to affect sensitive resources including coastal canyons, vernal pools, California gnatcatcher, and wildlife movement corridors. This alignment would have the highest environmental impacts of all of the alternatives in Subsection 3.

Because of the high level of environmental impact, this alignment is recommended to be **withdrawn from further consideration**.

**Figure 4-7: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 3
 (Murrieta/Temecula to North San Diego County)**

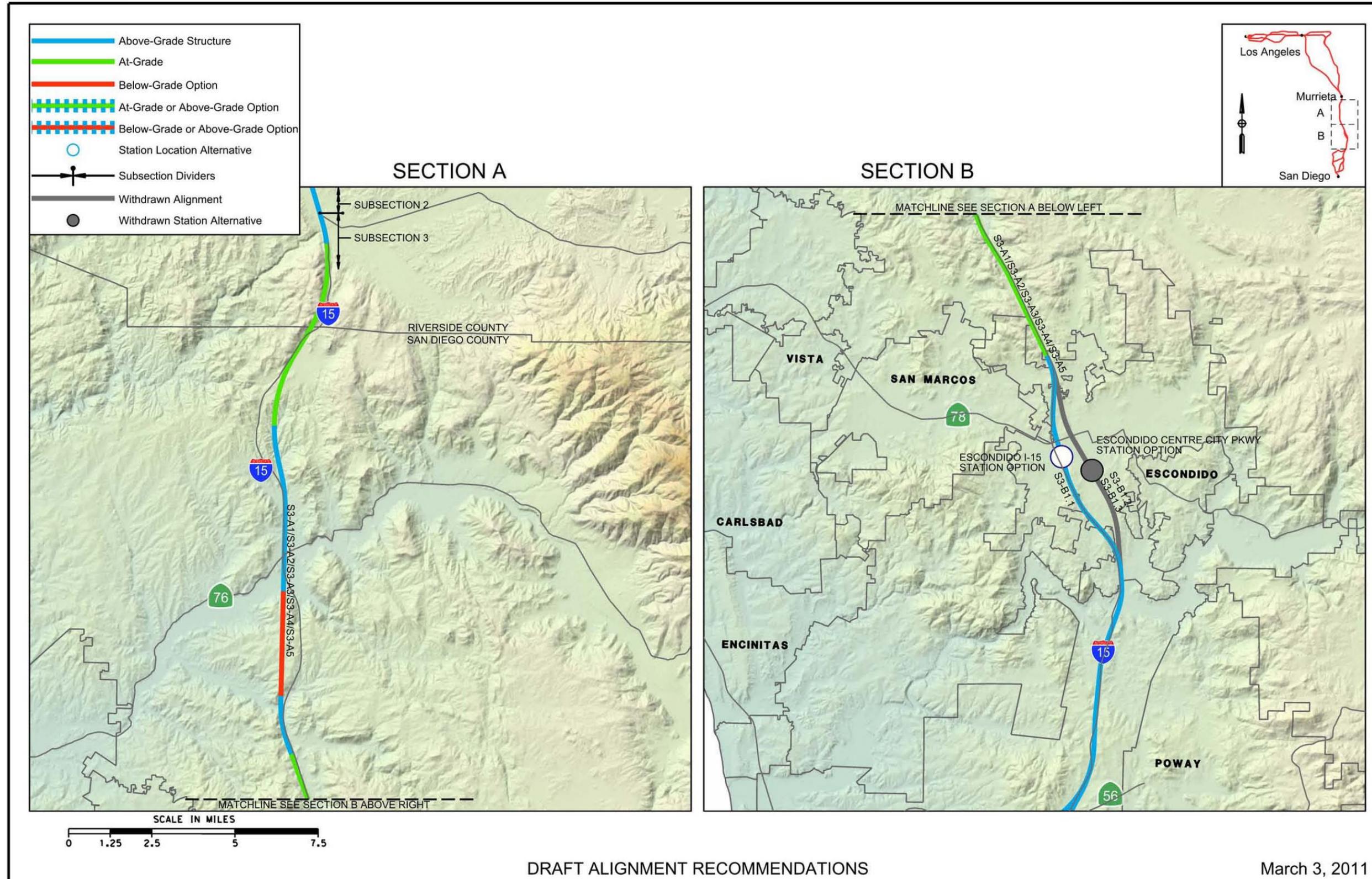
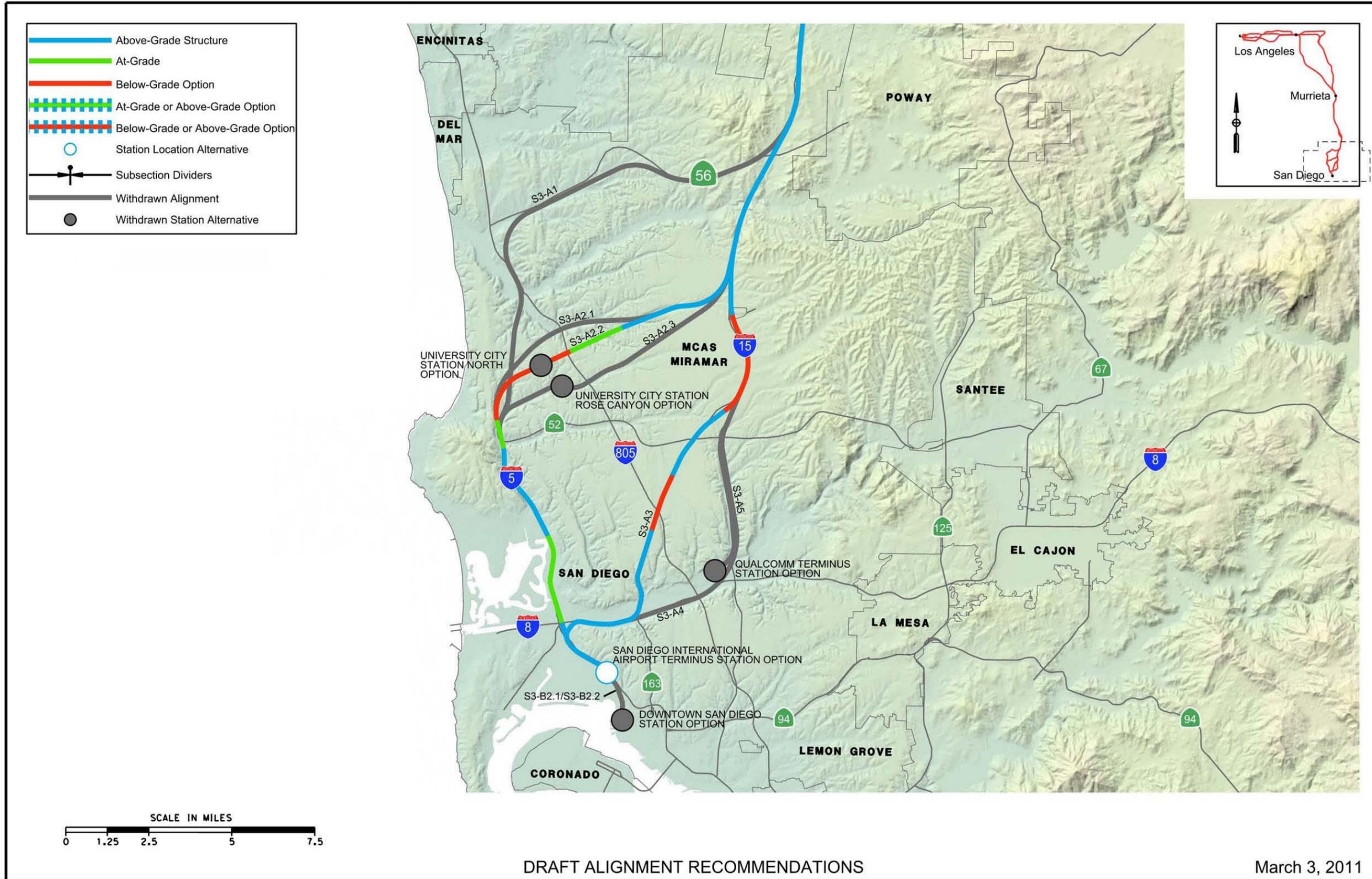


Figure 4-8: Alternative Alignment and Station Options Carried Forward and Withdrawn – Subsection 3
 (North San Diego County to San Diego)



Murrieta/Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor (Alternative S3-A2)

This alignment alternative utilizes the common alignment described above, then turns west, south of SR 56 in the Carroll Canyon/Miramar Road area, and divides into three approach alignments.

Carroll Canyon (S3-A2.1)

This alignment would affect fewer residential uses (81 acres), and fewer sensitive noise receptors (21 schools, libraries, hospitals and places of worship) of all the Murrieta/Temecula to San Diego alternatives. It would affect wetlands (29 acres), waterways (9,574 linear feet), new waterway bridge crossings (15), habitat conservation plans (703 acres), state and federally protected habitat (399 acres), agricultural lands (74 acres), and parklands (79 acres).

In addition, the USACE (Letter dated August 13, 2010), USFWS (Letter dated July 21, 2010), and the California Coastal Commission (Letter dated July 15, 2010) have expressed concern about the potential for this alignment to affect aquatic resources, critical wildlife connectivity and Multi-Habitat Planning Areas (MHPA) of the MSCP, as this alignment would involve greater impacts on waters of the United States. This alignment alternative is recommended to be **withdrawn from further consideration** because of high environmental impacts.

University City North (S3-A2.2)

This alignment would affect fewer residential uses (81 acres), and fewer sensitive noise receptors (21 schools, libraries, hospitals and places of worship) of all the Murrieta/Temecula to San Diego alternatives. It would also affect wetlands (27 acres), waterways (8,036 linear feet), new waterway bridge crossings (15), habitat conservation plans (701 acres), state and federally protected habitat (399 acres), agricultural lands (68 acres), and parklands (112 acres). This alignment has the lowest level of environmental impact in this subsection and is recommended to be **carried forward for further evaluation**.

Rose Canyon (S3-A2.3)

This alignment would affect fewer residential uses (86 acres), and fewer sensitive noise receptors (22 schools, libraries, hospitals and places of worship) of all the Murrieta/Temecula to San Diego alternatives. It would also affect wetlands (22 acres), waterways (6,011 linear feet), new waterway bridge crossings (16), habitat conservation plans (739 acres), state and federally protected habitat (399 acres), agricultural lands (68 acres), and parklands (112 acres). The S3-A2.3 alignment would also result in greater impacts on the MCAS Miramar property, potentially affecting the recently commemorated Veterans Cemetery south of Miramar Road, and result in noise and visual impacts on adjacent military housing. The alignment would affect fewer wetlands (22 acres) and fewer linear feet of waterways (6,011 feet) than either the S3-A2.1 or the S3-A2.2 alignments.

In addition, the USACE (Letter dated August 13, 2010), USFWS (Letter dated July 21, 2010), and the California Coastal Commission (Letter dated July 15, 2010) have expressed concern about the potential for this alternative to affect special aquatic resources, such as vernal pools, and critical wildlife connectivity, and MHPA lands. This alignment would have the second highest level of environmental impacts in this subsection. Residents of University City in the vicinity of Rose Canyon have also voiced concerns about potential effects of noise and vibration and visual changes on the surrounding community, including impacts on existing open space, wildlife corridors, recreational uses, and public safety associated with HST adjacent to the Rose Canyon Open Space Park. There is a potential Section 4(f) public lands issue associated with the restriction of access to a multiuse trail. This alignment alternative has the second most environmental impacts of the alignments in this subsection.

Operating speeds along this alignment would be limited by turnouts and the narrow ROW available into and through Rose Canyon. The S3-A2.3 alignment alternative is recommended to be **withdrawn from further consideration** because of high environmental impacts.

Common Alignment – Rose Canyon to SDIA

South of Rose Canyon, the S3-A2 alternative alignment follows the LOSSAN corridor south to SDIA. Along the LOSSAN corridor, the alignment passes east of Mission Bay before crossing the San Diego River. The City of San Diego has indicated the S3-A2 alignment may conflict with planned TOD development and the future extension of the Midcoast alignment along the Mission Bay corridor. South of the San Diego River, the alignment passes to the west of Old Town San Diego State Historic Park. The California Coastal Commission has indicated that an above-grade

structure in the vicinity of Mission Bay would likely affect visual resources and aesthetics protected by the Coastal Act, and recommends an at-grade configuration in this area. In response to similar concerns about visual resources and aesthetics by the City of San Diego, the HST guideway has been configured as an at-grade alignment along Mission Bay. Visual and noise issues related to Old Town San Diego State Historic Park are also of concern along this part of the alignment.

Because of the high level of environmental impacts associated with the Carroll Canyon (S3-A2.1) and the Rose Canyon (S3-A2.3) alignments, they are recommended to be **withdrawn from further consideration**. The University City North alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Murrieta/Temecula to SDIA via SR 163 and I-8 (Alternative S3-A3)

This alignment would affect the least residential uses (72 acres) and fewer sensitive noise receptors (20 schools, libraries, hospitals and places of worship) of all the Murrieta/Temecula to San Diego alternatives. It would also have the lowest impact on wetlands (18 acres), waterways (3,528 linear feet), new waterway bridge crossings (12), habitat conservation plans (684 acres), state and federally protected habitat (399 acres), agricultural lands (68 acres), and parklands (63 acres). The alignment would affect vernal pools, sensitive plant species, federally endangered wildlife species, and known historical and cultural resources. Representatives from MCAS Miramar recommend a deep below-grade alignment to avoid impacts on military operations and natural resources on federal property. The USFWS also expressed concern for potential impacts on vernal pools and wildlife connectivity. The California Coastal Commission indicated a preference for the SR 163/I-8 corridor because it is an existing transportation corridor.

The Murrieta/Temecula to SDIA via SR 163 and I-8 alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Murrieta/Temecula to SDIA via I-15 and I-8 (Alternative S3-A4)

This alternative alignment would have lower impacts on residential uses (70 acres) and sensitive receptors (18 schools, libraries, hospitals and places of worship) compared to the S3-A2 Carroll Canyon. Impacts on MSCP habitat (674 acres), state and federally protected lands (399 acres), wetlands (17 acres), waterway crossings (13), and parklands (63 acres) would also be generally lower than the S3-A2 alternative alignments. Impacts on vernal pools, wildlife crossings, and cultural resource through MCAS Miramar would be similar to those discussed for the S3-A3 alternative alignment, but S3-A4 would have higher impacts on waterways (4,056 linear feet).

Constructability is a major issue for this alignment, because crossing the I-805 would require passing over the freeway on a structure that would be more than 120 feet in height, the highest in the LA-SD corridor.

This alignment would result in a 120-foot-high structure over I-805. The S3-A4 alternative alignment is not practicable as a result of constructability issues and is recommended to be **withdrawn from further consideration**.

Murrieta/Temecula to Qualcomm Stadium Terminus via I-15 (Alternative S3-A5)

This alternative alignment shares a common route with S3-A4 until SR 52, where it extends down the west side of I-15 in order to connect with a terminus station at the proposed Qualcomm Station location. In order to provide this station connection, the alignment extends away from the I-15 through a system of drainages and waterways on the west side of I-15. Although this alignment would have the highest impacts on waterways (13,432 linear feet), it would result in the least overall impacts on communities and natural resources compared to the other alternatives. It would affect 70 acres of residential uses, 73 acres of commercial uses, and 17 sensitive receptors. Approximately 17 acres of wetlands, 682 acres of habitat conservation plan lands, 399 acres of federal- and state-protected habitat would be affected, and the alignment would require 13 new waterway bridge crossings. The alignment would affect 68 acres of agricultural lands and 68 acres of parklands. This alignment would require the relocation of the Kinder Morgan Tank Farm near Friars Road. This is a serious constructability issue with this alignment.

As discussed in the station evaluation below, this alternative does not provide a direct connection to SDIA or Downtown San Diego. This is not in conformance with the HST purpose and need, and would require additional transit travel time for passengers to access SDIA and travel into downtown San Diego. In contrast to the S3-A2 and S3-A3 alternatives, it would not provide the same level of intermodal transportation opportunities because it provides only limited connections to local transit and no direct connection with the city center or major regional air carrier

airport. Therefore, it does not meet the HST project purpose and need. As described earlier in this chapter, this alternative results in approximately the same ridership as the SDIA Station, particularly when there is no University City Station drawing ridership away from the SDIA Station. The City of San Diego and SANDAG have indicated their strong preference for an intermodal connection at SDIA and their opposition to a Qualcomm terminus. The S3-A5 alternative alignment is recommended to be **withdrawn from further consideration** because it does not meet the purpose and need of the HST project.

Design Options within Escondido and San Diego

Within the City of Escondido three alignment options were reviewed (S3-B1). These three alignment options would be applicable to all five alignments considered between Murrieta/Temecula and SDIA. In addition, an option to extend the alignment beyond SDIA to the Santa Fe Depot in Downtown San Diego was reviewed including two options – above-grade and below-grade (S3-B2).

S3-B1 Option consists of three options that extend through the City of Escondido from Country Club Lane to Via Rancho Parkway.

Escondido Station I-15 Option (S3-B1.1)

This alignment alternative would result in a moderate level of potential disruption to communities, including 23 residential acres, 11 commercial acres, 7 sensitive receptor parcels, 143 acres of habitat conservation plan lands, and 204 feet of linear waterways. The City of Escondido has expressed a preference for the S3-B1.1 alignment over the Centre City Parkway alignments. The S3-B1.1 alternative alignment is recommended to be **carried forward for further evaluation**.

Escondido Station Centre City Parkway Option (below-grade) (S3-B1.2)

This alignment alternative would be in a surface-level trench and result in the same level of potential disruption to communities as the above-grade alignment described below, including 63 residential acres, 22 commercial acres, 4 sensitive receptor parcels, 6 acres of state and federally protected habitat, 165 acres of habitat conservation plan lands, and 724 feet of linear waterways. This alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core. The City of Escondido expressed a preference for the I-15 Option. The S3-B1.2 alternative alignment is recommended to be **withdrawn from further consideration** because of lack of conformance with the Downtown Specific Plan and constructability impacts.

Escondido Station Centre City Parkway Option (above-grade) (S3-B1.3)

This alignment alternative would result in higher potential disruption to communities than the I-15 option, including 63 residential acres, 22 commercial acres, 4 sensitive receptor parcels, 6 acres of state and federally protected habitat, 165 acres of habitat conservation plan lands, and 724 feet of linear waterways.

Of these three design configurations, the S3-B1.1 Escondido Station I-15 option would have the least overall impacts on the local communities. The S3-B1.3 Centre City Parkway design option has the most impacts on residential uses (63 acres) and commercial uses (24 acres) compared to the S3-B1.1 I-15 above-grade option. This alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core. The City of Escondido expressed a preference for the I-15 Option. The S3-B1.3 alternative alignment is recommended to be **withdrawn from further consideration** because of lack of conformance with the Downtown Specific Plan and constructability impacts.

S3-B2 Downtown San Diego Station Option

There are two alignment options: above-grade and below-grade:

Downtown San Diego Station Option (SDIA to Santa Fe Depot) (above-grade) (S3-B2.1)

This alignment would affect 3 acres of residential, 10 acres of commercial, 4 acres of industrial, and 5 acres of public schools, open space, or public ROW. Two National Register of Historic Places properties (Santa Fe Depot) and 62 hazardous material sites may be affected by this alignment. The location within the coastal zone boundary involves more complex permitting. This alignment would also have visual and traffic impacts along the Embarcadero, and conflicts with the North Embarcadero Redevelopment efforts would require vertical and horizontal separation

from the AMTRAK Coaster and San Diego Trolley. Construction would cause substantive disruption to rail operations. Because of the historic Santa Fe Depot, impacts on related rail operations during construction, conflicts with the North Embarcadero Redevelopment Area, and the preference of SANDAG for the SDIA Station, the S3-B2.1 alignment alternative is recommended to be **withdrawn from further consideration**.

Downtown San Diego Station Option (SDIA to Santa Fe Depot) (below-grade) (S3-B2.2)

This alignment would affect less than 1 acre of residential, 2 acres of commercial, 2 acres of industrial, and 1 acre of public schools, open space and public ROW. The hazardous materials sites may be affected by this below-grade alignment. Although this alignment is below-grade, the development of the HST station associated with this alignment would affect the Santa Fe Depot, which is on the National Register of Historic Places. Although the below-grade alignment would have fewer impacts on traffic, it would result in high levels of disruption to the area.

The City of San Diego and SANDAG have expressed a preference for the SDIA Station to be the terminus for this project (see discussion about Downtown San Diego Station below). Because of the impacts to the historic Santa Fe Depot, potential below-grade hazardous materials incurred during construction, impacts on the North Embarcadero Redevelopment Area, and the stated preference of SANDAG for the SDIA Station, the S3-B2.2 alignment alternative is recommended to be **withdrawn from further consideration**.

4.2 Evaluation of Station Location Alternatives and Station Options

For the station alternatives and options, each station is represented by either a single location (e.g., Ontario International Airport or San Bernardino) or a group of station options (e.g., San Gabriel Valley, North Riverside County, and/or San Diego) of which one will ultimately be selected for implementation. In the case of single locations, these would be carried forward into the environmental analysis phase and not evaluated under the Alternatives Analysis. In the examples where a station alternative consisting of multiple station options would lead to one station alternative for that group, one of the following decisions is rendered:

- Station alternative is withdrawn if the associated alignment alternative is withdrawn for reasons not related to the station alternative; in this case, the station alternative is identified but not evaluated under the Alternatives Analysis.
- Station alternative is withdrawn for reasons related to the station; in this case, if the station alternative is the only alternative associated with a particular alignment alternative, then the alignment alternative is also withdrawn.
- Station alternative is withdrawn and the alignment alternative continues to be considered.
- Station alternative is carried forward into the environmental analysis phase.

With this evaluation methodology, the station alternatives to be carried forward are not rated comparatively. This is consistent with the purpose of the Alternatives Analysis, which is specifically to identify alternatives to be withdrawn before initiating environmental analysis. Instead, each alternative is described briefly in terms of the issues to be addressed during preliminary engineering and environmental analysis, which would lead to the selection of a preferred alternative in each station alternative group. Table 4-8 summarizes station options carried forward and withdrawn.

In the case of station alternatives to be withdrawn, each alternative is described briefly in terms of issues that support withdrawal. These issues have been identified through field investigations, examination of available planning and environmental data, and conversations with controlling jurisdictions (e.g., cities, counties, metropolitan planning organizations, and stakeholder input through outreach and scoping activities).

4.2.1 LAUS to Ontario International Airport (ONT) Subsection (S1)

For the following station description and assessment, see Figure 4-1 for the LAUS to I-605 segment and Figure 4-4 for the I-605 to Ontario International Airport segment for illustrations of the alignments and stations in this subsection that are carried forward or withdrawn.

Station Alternatives

San Gabriel Valley Station Alternative

El Monte Transit Center Option The El Monte Transit Center Station would be an elevated station above the El Monte Transit Center, a major San Gabriel Valley intermodal center, located north of the I-10/Santa Anita Avenue interchange. The surrounding land use primarily includes residential areas and commercial/office and small industrial areas and a few pockets of open space. The transportation network intensity around the El Monte Transit Center is anticipated to be high with traffic congestion at nearby intersections and easy access to I-10. Constraints associated with this station site may limit parking capacity. A small pocket of residential areas to the east of Santa Anita Avenue has the potential to be affected. This station has excellent intermodal transit connections and significant transit-oriented development (TOD) potential. The City of El Monte is pursuing mixed use and TOD surrounding the existing El Monte Transit Center as well as easy access to I-10. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS**.

El Monte Station – I-605 Option -- The El Monte Station – I-605 would be an elevated station located west of the I-605/Valley Boulevard interchange and along the west bank of the San Gabriel River channel. The surrounding land use primarily includes residential areas and industrial with commercial/office and small pockets of open space. The transportation network intensity around the El Monte Station – I-605 is anticipated to be high, with traffic congestion at nearby intersections and easy access to I-605. This station is located in a community with a disproportionate number of low income and minority residents. This station site is not close to an urban center, does not provide major intermodal connections, potentially encroaches on the Rio Hondo River channel, and would displace a high school campus and residential areas. Withdrawal of this option does not trigger the withdrawal of the associated alignment alternative, because connections to the West Covina Station and Pomona North Station options could be achieved along alignment alternative S1-A6. This station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration**, as it is not close to an urban center, does not provide major intermodal connections, and results in high levels of localized community impacts.

West Covina Station Option – The West Covina Station would be an elevated station located along the south side of I-10 near the interchange with North Vincent Avenue between the LAUS and Ontario stations. The surrounding land use primarily includes commercial/office on the south side of the freeway and residential on the north side of the freeway. The transportation network intensity around the West Covina Station is anticipated to be high, with traffic congestion at nearby intersections and easy access to I-10. Selection of this station would require development of local design and siting options that take existing and planned office and parking structures into consideration. Existing build-out of the surrounding area may limit TOD potential, but repurposing of malls as walkable, high-density mixed-use developments provide a long-term potential. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Cal Poly Station Option – The Cal Poly Station would be an underground station located in the Covina Hills north of I-10 and west of the interchange with Via Verde. The surrounding land use primarily includes California Polytechnic University (Cal Poly) and residential areas with pockets of open space. The transportation network intensity around the Cal Poly Station is anticipated to be moderate, with traffic congestion at nearby intersections and constrained access to I-10. This station location is not close to urban centers or to the Cal Poly campus. Surface facilities associated with this station would displace scenic open space and residential development and visually affect a cemetery south of I-10 (Forest Lawn Memorial Park). This station site has limited access from the I-10 freeway and intermodal connections, and very limited TOD potential. Therefore, this station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration**.

Industry Station Option – The Industry Station would be located northeast of the City of Industry Metrolink Station near the intersection of Grand Avenue and Ferrero Parkway. The surrounding land use is dominated by industrial and residential areas. Residential areas are located around the immediate industrial areas surrounding the proposed station. The transportation network intensity around the Industry Station is anticipated to be high, with traffic congestion and nearby intersections, freeways, and arterials. This station site is not close to urban centers or concentrations of medium- to high-density residential uses. An intermodal connection with Metrolink would only be possible if the Industry Metrolink Station is relocated to this station site. The Industry Metrolink Station is currently located 0.5 mile southeast of the Industry Station Option. In addition, TOD potential for this area is minimal, and this

station is not supported by City of Industry. This station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration** because the alignment alternative on which it is located is also being withdrawn.

Pomona/Holt Station Option – The Pomona/Holt Station would be located near the intersection of Garey Avenue and Holt Avenue. This station would be located approximately 0.25 mile from downtown Pomona and within two blocks of a Metrolink/Amtrak station and an intermodal center. The surrounding land use is dominated by commercial/office, industrial, and residential areas. The transportation network intensity around the Pomona Station North is anticipated to be high, with traffic congestion on nearby freeways, intersections, and arterials. This station would potentially displace churches and other institutional and commercial uses. The City of Pomona has expressed an interest in further exploring the range of horizontal and vertical configurations of this station location. The surrounding area appears to have moderate TOD potential through redevelopment of area over time, including parcels that are currently vacant or underutilized. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Pomona/UPRR Station Option – The Pomona/UPRR Station would be an elevated station located at the Downtown Pomona Metrolink Station and Bus Intermodal Center near the intersection of Garey Avenue and Commercial Street. The surrounding land use primarily includes commercial/office and industrial areas. Residential areas are located around the immediate industrial areas surrounding the proposed station. The transportation network intensity around the Pomona Station South is anticipated to be high, with traffic congestion at nearby freeways, intersections, and arterials. This station location has excellent intermodal connections and downtown access. However, this station site is highly constrained. There are feasibility issues with this station location, including a narrow, active railway corridor, lack of parking, and potential impacts on historical resources, including adjacent downtown commercial structures and the historic Santa Fe Depot. This station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration** because the alignment alternative on which it is located is also being withdrawn.

Pomona/First Station Option – The Pomona/First Station would be an elevated station located immediately south of the Downtown Pomona Metrolink Station and Bus Intermodal Center near the intersection of Garey Avenue and First Street. The surrounding land use primarily includes commercial/office and industrial areas. Residential areas are located around the industrial areas surrounding the proposed station. The transportation network intensity around the Pomona Station South is anticipated to be high, with traffic congestion at nearby freeways, intersections, and arterials. This station location has excellent intermodal connections and downtown access. However, this station site is highly constrained. There are feasibility issues with this station location, including a narrow, active railway corridor, lack of parking, and potential impacts on historical resources, including adjacent downtown commercial structures and the historic Santa Fe Depot. Although the station location has challenges, this station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS** pending additional engineering and environmental evaluation of the alignment alternative.

4.2.2 Ontario International Airport to Murrieta/Temecula Subsection (S2)

See Figure 4-5 for the Ontario International Airport to North Riverside County segment and Figure 4-6 for the North Riverside County to Murrieta/Temecula segment for illustrations of the alignments and stations in this subsection.

Station Alternatives

Ontario International Airport Station Alternative

Ontario International Airport - The station at Ontario International Airport would be an elevated station located along the south side of the UPRR tracks and north of the airport passenger terminals. The surrounding land use is dominated by the airport, industrial, and commercial/office uses. The transportation network intensity around the Ontario Station is anticipated to be moderate, with traffic congestion at nearby freeways, intersections, and arterials as well as easy access to I-10 and I-15. This station would connect to airport passenger terminals and the future extension of the Metro Gold Line. This station also has a potential connection with Metrolink if Metrolink service is relocated to the UPRR corridor. Furthermore, connection at this HST location is consistent with regional planning efforts to connect regional air hubs and is supported by the City of Ontario and Los Angeles World Airports. There is TOD potential in the area between the UPRR corridor and I-10. Potential impacts on the surrounding historical

features (Guasti Winery) are associated with this station. This station alternative is recommended to be **carried forward for further evaluation in the EIR/EIS**.

San Bernardino Station Alternatives

City of San Bernardino Station Option -- The City of San Bernardino Station would be an at-grade station located between I-215 and "E" Street within 0.25 mile of the downtown civic and commercial core and the existing baseball stadium. The City of San Bernardino Station option provides a very high level of intermodal connectivity. The HST station is proposed to be adjacent to the planned downtown San Bernardino Transit Center, which will be located at the southwest corner of "E" and Rialto Streets. In addition to being the new hub for the local Omnitrans bus service, the San Bernardino Transit Center will be served by three planned transit improvements. First, SANBAG is planning to extend the existing Metrolink line from Los Angeles, which currently terminates at the Santa Fe Depot west of I-215, into downtown along the existing railroad ROW to the transit center. Second, SANBAG and the City of Redlands are planning a new light rail line from the transit center to Downtown Redlands and the University of Redlands. Third, the City of San Bernardino is planning the E Street Corridor sbX Bus Rapid Transit project, connecting the California State University, San Bernardino campus on the north with the Loma Linda Medical Center complex on the south. The relationship of the HST station to these other planned transit projects can be seen on the engineering drawings in Appendix A.

This station would have easy access to I-215 and would be located on the site of the future San Bernardino Transit Center, which would support the extension of Metrolink service into downtown San Bernardino, future light rail transit to Redlands, and a bus rapid transit line along E Street. The surrounding land use primarily includes commercial/office and industrial areas. Residential areas are located around the industrial areas surrounding the proposed station. The transportation network intensity around the City of San Bernardino Station is anticipated to be low at nearby freeways, intersections, and arterials. San Bernardino produces a greater level of ridership than stations on the western corridor (I-15). This station is supported by the City of San Bernardino, and the area has significant potential for TOD. This station alternative is recommended to be **carried forward for further evaluation in the EIR/EIS**.

County of San Bernardino I-10 Station Option -- The County of San Bernardino Station would be located on the north side of I-10 near Alder Avenue in an unincorporated area of the county immediately east of the Fontana city limits. A future freeway interchange is planned at Alder Avenue that could provide a connection from the planned I-10 HOV lanes to the surrounding area. The surrounding land use is a mixture of industrial, residential, and commercial areas. This station option would provide access to the HST system for the San Bernardino area if the City of San Bernardino Station Option cannot be achieved. This station alternative is recommended to be **carried forward for further evaluation in the EIR/EIS**.

North Riverside County Station Alternative

Riverside Station – Martin Luther King Boulevard Option – The Riverside Station – Martin Luther King Boulevard would be an elevated station along I-215 near Martin Luther King Boulevard. As previously stated, UC-Riverside representatives have concerns with the station location because of existing pedestrian and traffic congestion within and near the campus facility. The surrounding land use is primarily residential, with limited potential for TOD. The transportation network intensity around the station is anticipated to be moderate, with traffic congestion at nearby arterials and easy access to I-215. This station site is highly constrained because of the topography, and visual impacts on the residential areas would require further analysis if this station site is selected. After several meetings with Caltrans, the City of Riverside, and UC-Riverside, officials indicated that UC-Riverside was not a desirable location for the HST station and that March ARB would be a more appropriate location to serve the needs of the Riverside area. Therefore, the Riverside Station – Martin Luther King Boulevard option is recommended to be **withdrawn from further consideration**.

Riverside Station – Watkins Drive Option -- The Riverside Station – Watkins Drive would be located along the east side of Watkins Drive at the interchange with I-215. The surrounding land use is primarily residential. The transportation network intensity around the station is anticipated to be moderate, with traffic congestion on nearby arterials and easy access to I-215 and SR 60. This station site is highly constrained because of topography (hills) and converging alignments of I-215 and the UPRR San Jacinto Branch line. Potential for TOD would also be limited by topography and available land in station area. This station would not be close to traditional urban centers or within

walking distance of the UC-Riverside campus. The City of Riverside and UC-Riverside believe that a station at March ARB better addresses the needs of Riverside County. Furthermore, the alignment for this station location is being withdrawn; therefore, the Watkins Drive station option is recommended to be **withdrawn from further consideration**.

March ARB Station Option -- The March ARB Station would be an elevated station located along the west side of I-215 near Harley Knox Boulevard. The surrounding land use is dominated by industrial and commercial areas. The transportation network intensity around the March ARB Station is anticipated to be low, with nearby freeways and arterials as well as easy access to I-215 and the proposed Mid County Parkway. The City of Riverside and UC-Riverside support this station site. Although this station location would not be located near traditional urban centers, it would serve a region with significant projected urban growth (western Riverside County) and potential for TOD in the area south of the proposed station. In addition, the future Metrolink extension to Perris would be located in the area of this station. The March ARB Station option is supported by the City of Riverside, City of Moreno Valley and UC-Riverside. Connections at this HST location are consistent with regional planning efforts to connect regional air hubs. The March ARB Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Corona Station Option -- The Corona Station would be an elevated station located east of I-15, near the intersection with Cajalco Road and Temescal Canyon Road. The site is adjacent to commercial and retail centers in a suburban area approximately 4 miles south of Downtown Corona. The surrounding land use is dominated by commercial/office and industrial with small pockets of open space. Residential areas are located around the immediate commercial/office and industrial areas surrounding the proposed station. The transportation network intensity around the Corona Station is anticipated to be moderate, with traffic congestion at nearby freeways, intersections and arterials as well as easy access to I-15. The station area has significant potential for TOD through development of underutilized parcels and long-term repurposing of shopping centers as high-density, walkable, mixed-use development. The City of Corona and Corona Chamber of Commerce support this station site. The Corona Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

City of Murrieta Station Alternative

Murrieta Station – I-215 Option -- The Murrieta Station – I-215 would be located along I-215, between Murrieta Hot Springs Road and Los Alamos Road, within a few miles of the town centers for Murrieta and Temecula. The surrounding land use is dominated by commercial/office and residential with small pockets of open space. The transportation network intensity around the station is anticipated to be moderate, with traffic congestion at nearby freeways, intersections, and arterials as well as easy access to I-215 and I-15. Although constraints associated with this station site may limit parking capacity and future build-out, this station area has potential for TOD. This station also has the potential to support commuter rail through development of a shared-use corridor to San Diego. The City of Murrieta and the City of Temecula support this station site. This Murrieta station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Murrieta Station – I-15 Option -- The Murrieta Station – I-15 would be located along I-15, between Los Alamos Road and California Oaks Road. The surrounding land use is dominated by commercial/office and residential, with minimal industrial use and small pockets of open space. The transportation network intensity around the station is anticipated to be moderate, with traffic congestion at nearby freeways, intersections, and arterials as well as easy access to I-215 and I-15. This station would be closer to the Murrieta Town Center. Although constraints associated with this station site may limit parking capacity and future build-out, this station area has potential for TOD. This station also has the potential to support commuter rail through development of a shared-use corridor to San Diego. The City of Murrieta and the City of Temecula support this station site. This Murrieta station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

4.2.3 Murrieta/Temecula to San Diego Subsection (S3)

See Figure 4-7 for the Murrieta/Temecula to North San Diego County segment and Figure 4-8 for the North San Diego County to San Diego segment for illustrations of the alignments and stations in this subsection.

Station Alternatives

Escondido Station Alternative

Escondido Station – I-15 Option -- The Escondido Station – I-15 would be located east of I-15, south of the I-15/SR 78 interchange. This station would be within 0.25 mile west of the Escondido Transit Center, which currently provides station service for intercity and local buses as well as the local commuter rail, the Sprinter. The surrounding land use is dominated by industrial with commercial/office. This station would be farther from downtown Escondido than the Centre City Parkway option. Residential areas are located around the commercial/office and industrial areas surrounding the proposed station. The transportation network intensity around the station is anticipated to be high, with traffic congestion at nearby freeways, intersections, and arterials as well as easy access to I-15 and SR 78. The potential for TOD is high given current redevelopment efforts of the City of Escondido. As part of the Downtown Specific Plan, proposed redevelopment efforts would occur primarily east of Centre City Parkway in the downtown core area. A potential connection to the Sprinter would require a new Sprinter platform. This station site is constrained because of the existing Sprinter facilities and would require further analysis if selected. Local transit connections to the Escondido Transit Center and Downtown Escondido are also recommended if this station is selected. The Escondido I-15 Station option is supported by the City of Escondido. This Escondido Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Escondido Station – Centre City Parkway Option -- The Escondido Station – Centre City Parkway would be located along Centre City Parkway at the intersection with West Valley Parkway, east of I-15, between the existing Escondido Transit Center and downtown Escondido. This station would be within 0.25 mile east of the Escondido Transit Center, which currently provides station service for intercity and local buses as well as the local commuter rail, the Sprinter. The surrounding land use primarily includes industrial and commercial/office with residential. The transportation network intensity around the station is anticipated to be moderate, with traffic congestion at nearby intersections and arterials as well as easy access to I-15 and SR 78. This station would affect existing retail/commercial land uses, and it would provide better connectivity with the planned redevelopment efforts in Escondido compared to the I-15 station option. The Escondido Station – Centre City Parkway option is recommended to be **withdrawn from further consideration** because the alignment associated with this station is withdrawn.

University City Station Alternative

University City Station North Option -- The University City Station North would be an underground station located at the intersection of La Jolla Village Drive and Genesee Avenue, east of I-5 and west of I-805. This station would connect to the Westfield University Towne Center Shopping Center and nearby moderate- and high-density residential developments. The surrounding land use primarily includes residential and commercial/office. The transportation network intensity around the University City Station North is anticipated to be high at nearby freeways, arterials, and local streets. As referenced below, the SANDAG High Speed Rail Feasibility Study, Commuter Rail Overlay Station option (completed in January 2010) includes a station at this location. The City of San Diego and SANDAG have withdrawn their support for a HST station in this location. Because of the lack of support, the University City Station North option is recommended to be **withdrawn from further consideration**.

University City Station- Rose Canyon Option -- The University City Station - Rose Canyon Option would be an at-grade station along Nobel Drive to the east of Genesee Avenue. The surrounding land use is dominated by open space. This station site is not close to traditional urban centers or planned centers of mixed-use development, and it has no intermodal access. There is no TOD potential. There are constructability issues with this station because the curve radii and very short straight tangent between curves does not meet HST design standards for the length of station tangents. The University City Station – Rose Canyon option is recommended to be **withdrawn from further consideration** because the alignment associated with this station has been withdrawn.

San Diego Station Alternatives

Qualcomm Stadium Terminus Station Option -- The Qualcomm Stadium Terminus Station would be located in the existing parking lot of Qualcomm Stadium north of I-8 and west of I-15. The surrounding land use includes industrial, commercial/office, residential, and small pockets of open space. The transportation network intensity around the station is anticipated to be moderate, with traffic congestion at nearby intersections, freeways, and arterials as well as easy access to I-8 and I-15. This station location is distant from traditional urban centers, airports, and planned centers of mixed-use development. The potential for TOD is limited because of existing stadium development, although there is potential for future shared use of stadium property for mixed use and concentrated parking. The Qualcomm Stadium Terminus Station option is recommended to be **withdrawn from further consideration** because the alignment alternative on which it is located is also being withdrawn.

San Diego International Airport Station Option -- The SDIA Station would be located within the planned Intermodal Transit Center (ITC), which would be located next to the existing railroad, I-5, and Pacific Highway. The ITC would provide connections and station services for SDIA, HST, intercity and commuter rail, the San Diego Trolley, local buses, taxis, and rental cars. The surrounding land use includes SDIA, industrial, commercial/office, federal lands, and residential uses. The transportation network intensity around this station is anticipated to be high, with traffic congestion at nearby intersections, freeways, and arterials as well as easy access to I-5. The phasing of this station with the associated ITC intermodal developments site selection for parking structures, and resolution of traffic circulation and freeway access would require further analysis if this station site is selected. Large areas for parking could be used to serve airport and HST users. This station location is consistent with regional and local planning efforts (*Destination Lindbergh Study-2009*) and is supported by the San Diego Association of Governments and the City of San Diego. The SDIA Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

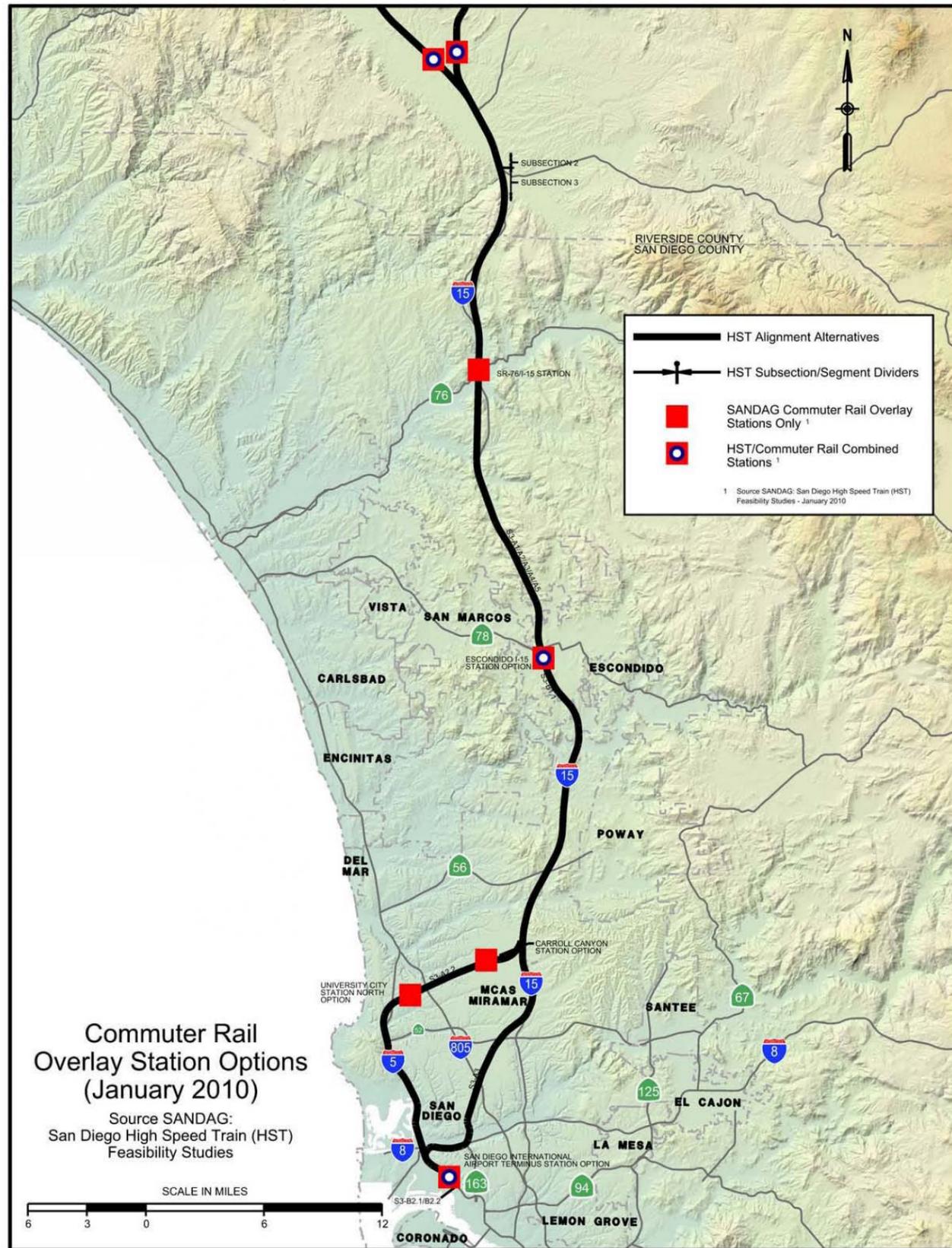
Downtown San Diego Station Option -- The Downtown San Diego Station would be located adjacent to the existing downtown intermodal transit center, and the Santa Fe Depot, which provides intermodal station service for Amtrak, Coaster, buses and the San Diego Trolley. The surrounding land use includes residential, commercial/office, and federal lands. The transportation network intensity around this station is anticipated to be high, with traffic congestion at numerous intersections as well as nearby freeway and arterials. Although this station directly serves Downtown San Diego and the downtown waterfront, the City of San Diego and SANDAG have expressed a preference for the San Diego International Airport station to be the terminus of this project. The Downtown San Diego Station has challenging constructability issues related to the station's proximity to the waterfront, the historical Santa Fe Depot, view corridor blockage, and visual and noise impacts associated with the adjacent high-rise residential development. The Downtown San Diego Station option is recommended to be **withdrawn from further consideration** because the alignment alternative on which it is located has been withdrawn.

Commuter Station Overlay Compatibility

In January 2010, SANDAG completed the SANDAG High Speed Rail Feasibility Study, Commuter Rail Overlay Station option. The study reviewed the potential for a commuter rail operation by using existing HST infrastructure with the addition of added commuter rail stations. SANDAG's adopted 2030 RTP was used to define forecast land use, demographic data, existing and future transit systems, roadway and highway networks, additional freight corridors and future travel patterns. Using that information, the commuter rail stations were identified along the HST corridor.

As shown on Figure 4-9, Commuter Rail Overlay Station Options, the station options to be carried forward align with commuter rail stations on I-15 and I-215 at Murrieta, in Escondido, and at the San Diego International Airport.

Figure 4-9: Commuter Rail Overlay Station Options



5.0 ANALYSIS SUMMARY AND CONCLUSIONS

Chapter 5.0 summarizes the conclusions and recommendations on which alignment alternatives, station locations, and design options should be withdrawn from further study or be carried forward for analysis in the EIR/EIS based on the results of the Alternatives Analysis process including input from agencies, other stakeholders, and the public.

Tables 5-1, 5-2, and 5-3 present a summary of the HST alignment alternatives being considered, and their evaluation. The table summarizes alignment alternatives within each subsection and proposed recommendations regarding the withdrawal or carrying forward of the alignment into the EIR/EIS. Table 5-4 presents a summary of the evaluation of the HST station alternatives and station options, where more than one station opportunity has been identified.

Figures 5-1 through 5-4 illustrate the alignment alternatives, station alternatives, and options recommended to be carried forward into the EIR/EIS for further study. Colored alignments and white station dots on the figures indicate that the alignment alternative and station location option is to be carried forward. Alignments and station dots in grey are proposed to be withdrawn from further consideration. The recommendations of this Alternatives Analysis report are summarized below.

5.1 Alignment Alternatives, Station Alternatives and Design Options to be Carried Forward into EIR/EIS

The LA-SD Section of the HST extends from Los Angeles to the Inland Empire and south to San Diego for a distance of over 170 miles. The LA-SD Section has been divided into three subsections to assist in assessing the alternative alignments and stations that have been identified and evaluated herein. At the key stations of Ontario International Airport and Murrieta/Temecula, the subsection alternatives are connected to the adjacent subsection. The alternatives can be “mixed and matched” between each subsection to ultimately develop and select a preferred LA-SD HST alignment and station alternative at the end of the EIR/EIS phase of project development. The recommendations for alignment and station options to be carried forward and withdrawn are summarized in Figure 5-1.

5.1.1 Los Angeles to Ontario International Airport Subsection (S1)

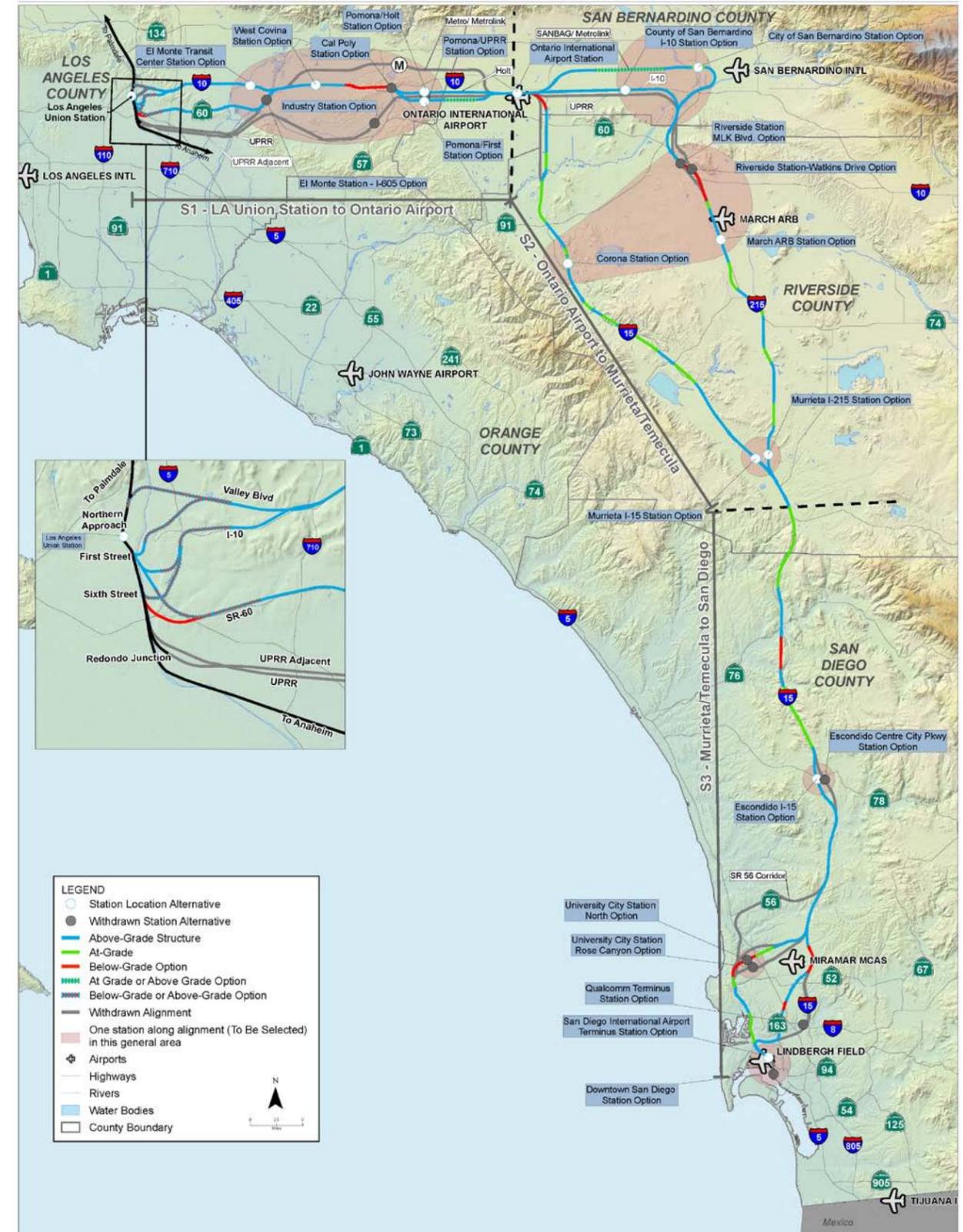
As described in Chapter 3, there are seven alignment alternatives evaluated in Subsection 1 that combine to connect LAUS and the Ontario International Airport.

Alignment Alternatives

LAUS to I-605/I-10

As described in Chapter 3, the direct connection to LAUS is being evaluated in a separate document, the *Supplemental Alternatives Analysis for the LA-Anaheim Section* (Authority, July 2010), and related environmental documents. The final recommendation for the direct connection will be made following the extensive consultation between the LA-Anaheim Section and the LA-SD Section. That consultation is in progress and will continue through the engineering and environmental phases of both projects. There are four primary approach locations – North, Mission Road, First Street, and Sixth Street; in addition to I-10, SR 60, UPRR, and the alignment adjacent to UPRR, they result in nine alignment alternatives between LAUS and I-10/I-605.

Figure 5-1: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Summary Map)



LAUS to I-605 via I-10 (Alternative S1-A1)

S1-A1 Alternative alignments

These alignment alternatives all follow the I-10 corridor from LAUS approximately 15 miles east towards the I-605/I-10 intersection. This alternative alignment meets the Authority's goals of following existing transportation corridors to the greatest extent possible, as stated in the purpose and need statement. These connection alternatives would potentially conflict with the LA River Revitalization Master Plan and are specifically within the Downtown Industrial Area revitalization concept of the planned revitalization and restoration efforts. In addition, these nine alignments all potentially have high levels of effect on waterways and related resources with the above-grade alignments (S1-A1.1, S1-A1.3, S1-A1.5, and S1-A1.7) resulting in higher levels of impact than the below-grade alignments (S1-A1.2.1, S1-A1.2.2, S1-A1.4, S1-A1.6, and S1-A1.8). The above-grade alignments also result in higher levels of community disruption; however, the below-grade alignments present greater constructability challenges. The alignment of I-10 is much straighter than SR 60 or the UPRR, allowing for the potential for higher speeds and improved HST operations.

Although there are engineering challenges associated with all of the S1-A1 alignment alternatives, the I-10 corridor allows for higher speeds and improved HST operations than the S1-A2 SR 60, S1-A3 UPRR, and S1-A4 UPRR adjacent alternatives. The presence of the existing Metrolink track in the center of I-10 from I-710 to El Monte provides a unique opportunity to develop this section of I-10 as a true multimodal transportation corridor.

Until further engineering and environmental studies are conducted for the remaining LAUS/I-10 approach alternatives, they are recommended to be **carried forward for further evaluation in the EIR/EIS**.

Table 5-1: Alignment Alternatives Analysis Matrix (Subsection 1 – LAUS to I-605/I-10)

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary									COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/Ridership	Community Impact	Environment		
LAUS to I-605												
S1-A1: APPROACH OPTIONS TO LAUS plus INTERSTATE 10 TO I-605 (I-10)												
I-10 via North above-grade approach (A1.1)	✓										Rail operational limitations and rail capacity constraints.	
I-10 via North below-grade approaches (A1.2.1)	✓										Rail operational limitations and rail capacity constraints, high comparative costs of below-grade alignments.	
I-10 via North below-grade approaches (A1.2.2)	✓										Rail operational limitations and rail capacity constraints, high comparative costs of below-grade alignments.	

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary									COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/Ridership	Community Impact	Environment		
I-10 via Mission Road above-grade approach (A1.3)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
I-10 via Mission Road below-grade approach (A1.4)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	
I-10 via I-5/First Street above-grade approach (A1.5)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
I-10 via I-5/First Street below-grade approach (A1.6)	✓										Community disruption, visual impacts, and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary									COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment		
I-10 via I-5/Sixth Street above-grade approach (A1.7)	✓										Community disruption, visual impacts and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo and San Gabriel Rivers.	
I-10 via I-5/Sixth Street below-grade approach (A1.8)	✓										Community disruption, visual impacts and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	
S1-A2: STATE ROUTE 60 (SR-60)												
SR-60 via First Street above-grade approach (A2.1)	✓										Community disruption, visual impacts and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo and San Gabriel Rivers.	
SR-60 via First Street below-grade approach (A2.2)	✓										Community disruption, visual impacts and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo and San Gabriel Rivers, although reduced by below-grade alignment connecting to LAUS.	

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary									COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment		
SR-60 via Sixth Street below-grade approach (A2.3)	✓										Community disruption, visual impacts and impacts on aquatic resources, particularly related to the Los Angeles, Rio Hondo, and San Gabriel Rivers.	
S1-A3: UNION PACIFIC RAILROAD (UPRR)												
LAUS to east of 605 via UPRR via below-grade 6th Street connection to LAUS (A3.1)		✓			P	P			S		UPRR operational and capacity constraints affecting critical freight rail corridor, extensive land use impacts, and constrained geometrics make this alternative impracticable.	
LAUS to east of 605 via UPRR via above-grade Redondo Junction connection to LAUS (A3.2)		✓			P	P			S	S	UPRR operational and capacity constraints affecting critical freight rail corridor, extensive land use impacts, and constrained geometrics make this alternative impracticable.	
S1-A4: UPRR ADJACENT												
LAUS to I-605 via land adjacent to the UPRR via 6th Street below-grade connection to LAUS (A4.1)		✓			P	P			S	S	Adjacent to ROW would result in substantial property acquisitions, impacts on UPRR-related industrial activities, and constrained geometrics make this alternative impracticable.	

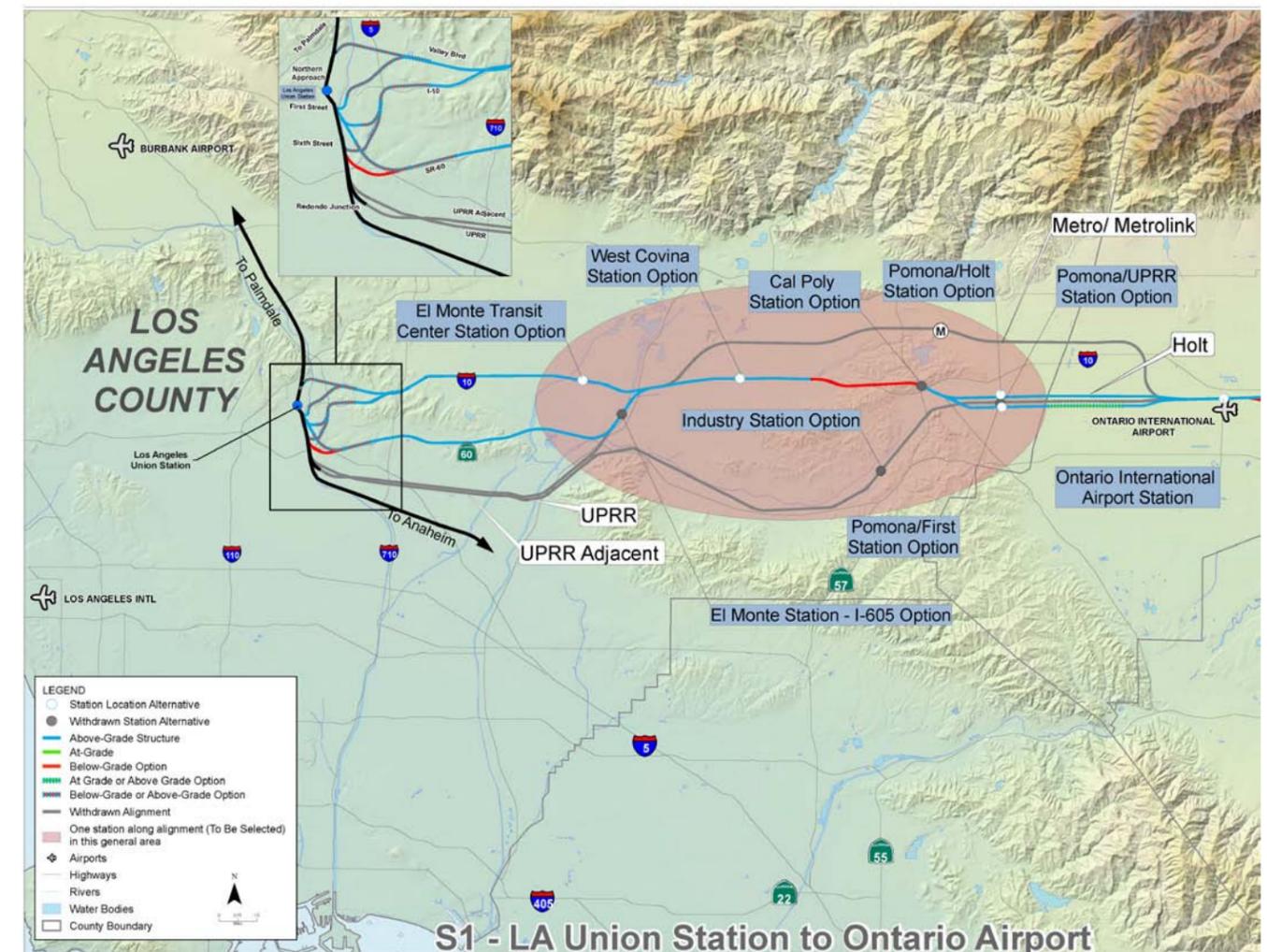
ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
LAUS to I-605 via land adjacent to the UPRR via Redondo Junction above-grade connection to LAUS (A4.2)		✓			P	P			S	S	Adjacent to ROW would result in substantial property acquisitions, impacts on UPRR-related industrial activities, and constrained geometrics make this alternative impracticable.
I-605 to Ontario International Airport											
S1-A5: METROLINK TO ONT											
I-605/I-10 to Ontario International Airport via Metrolink (A5)		✓			P	P			S	S	Rail conflicts and insufficient right-of-way in this Metrolink shared use corridor make this alignment impracticable
S1-A6: I-10 AND HOLT											
I-605/I-10 to Ontario International Airport via I-10/Holt, Holt Boulevard above-grade approach (A6.1)		✓									Community impacts, noise and visual impacts, and traffic impacts.
I-605/I-10 to Ontario International Airport via First Street / State Street above-grade or at-grade approach (S1-A6.2)		✓									Community impacts, noise and visual impacts, and traffic impacts.
S1-A7: UPRR											
S1-A7: UPRR from east of I-605 to Ontario International Airport (A7)		✓			P	P			S	S	UPRR operational and capacity constraints affecting critical freight rail corridor, impacts on surrounding properties, and constrained geometrics make this alternative impracticable.

LAUS to I-605 via SR 60 (Alternative S1-A2)

These alternative alignments along the SR 60 would result in high levels of impact on natural resources. They would result in high visual impacts where the HST guideway would traverse Whittier Narrows Regional Park and along the SR 60/I-710, where an elevated guideway would extend approximately 120 feet in height. This alignment also crosses a USEPA Superfund site, various major utilities including active and capped wells, and Southern Edison transmission tower facilities.

Future planned transportation projects along this alternative alignment would limit the availability of ROW. The geometrics of SR 60 would require multiple skewed crossings of the freeway in order to achieve even the minimum desirable speeds for HST. Until further engineering and environmental studies can be completed for both the SR 60 and I-10 alignments and the evaluation of the Union Station alternatives is completed, this SR 60 alignment alternatives and related LAUS connections are recommended to be **carried forward for further evaluation** because it may provide better connectivity to LAUS.

Figure 5-2: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 1)



LAUS to East of I-605 via UPRR (Alternative S1-A3)

This alternative alignment would have the least community and natural resource impacts. However, the UPRR has expressed strong concerns regarding the potential disruption of existing and future railroad operations. The UPRR alternative alignment would result in operating constraints for the UPRR in this important freight corridor. The UPRR (letter dated November 23, 2009 see Appendix D) has stated that they would oppose any proposed use of UPRR ROW and would consider such demand for use as subject to the Federal Surface Transportation Board regulations relative to the maintenance of freight services. In addition, the geometrics of the UPRR alignment result in a highly constrained geometry through Pico Rivera that would limit HST speeds to less than 70 mph. Alternative S1-A3 is determined to not be practicable as a result of right-of-way constraints, severity of impacts, and constrained geometrics and is recommended to be **withdrawn from further evaluation**.

LAUS to I-605 via UPRR Adjacent (Alternative S1-A4)

This alternative would result in the highest level of land use impacts of the four alternatives from LAUS to I-605. In addition, the UPRR has expressed strong concerns regarding the potential disruption of existing and future railroad operations. The geometrics of the UPRR alignment result in highly a constrained geometry that would limit HST speeds to less than 70 mph. Because of impacts on surrounding properties and constrained geometrics this alternative alignment is determined to be impracticable and is recommended to be **withdrawn from further consideration**.

I-605/I-10 to Ontario International Airport

I-605/I-10 to Ontario International Airport via Metrolink (Alternative S1-A5)

Among the I-605 to Ontario International Airport corridor alternatives, this alignment potentially has the highest disruption to local communities, would potentially affect historical resources, and result in moderate visual impacts on local surface streets (Euclid Avenue) that traverse a historic district through the City of Claremont. This alignment would adversely affect Metrolink operations because of the limited 50-foot-wide ROW along portions of the corridor. In the eastern portion of the corridor, where the ROW is 100 feet wide, the Goldline LRT is planned to operate alongside Metrolink, leaving insufficient space for HST guideway. The alignment would require reverse curves that would limit the speed that HST could achieve, resulting in undesirable operations. The S1-A5 alignment alternative is impracticable because of the Metrolink ROW constraints and is recommended to be **withdrawn from further consideration**.

I-605/I-10 to Ontario International Airport via I-10/Holt (Alternative S1-A6)

There are two approach alignment alternatives – above-grade and below-grade.

Holt Boulevard above-grade approach (S1-A6.1) – The S1-A6.1 approach alignment would include an above-grade guideway through Holt Boulevard, resulting in potentially high visual impacts through this urban corridor.

First Street/State Street above-grade or at-grade approach (S1-A6.2) – This approach alignment would have less impact on community and natural resources.

Further discussions are needed with the cities of Pomona, Montclair, and Ontario to identify an alignment through this area that can be supported by all three cities. Although there are engineering challenges with this alignment, it allows for more efficient operation than the S1-A5 Metrolink and S1-A7 UPRR alternatives. The I-10 alignment is potentially the only practicable alignment between I-605 and the Ontario International Airport; therefore, the S1-A6 alternative is recommended to be **carried forward for further evaluation** to allow continued engineering and environmental evaluation of the issues noted above.

UPRR from East of I-605 to Ontario International Airport (Alternative S1-A7)

This alignment would be within the UPRR ROW. Similar to the S1-A3 UPRR alignment alternative, potential disruption of existing and future railroad operations is a major concern to UPRR. Impacts on residential and commercial uses would be relatively low in comparison with the Metrolink and Holt Boulevard alternative alignments between I-605 to Ontario International Airport. Impacts on hazardous waste sites would be the highest of the alternative alignments through this corridor. The S1-A7 alternative is impracticable because of impacts on surrounding properties, impacts

on freight operations and capacity in this critical freight corridor, and constrained geometrics for HST operations. Therefore, Alternative S1-A7 is recommended to be **withdrawn from further consideration**.

5.1.2 Ontario International Airport to Murrieta/Temecula Subsection (S2)

The performance of the four alignment alternatives, and three design options, against the evaluation measures is described below. Table 5-2 summarizes the evaluation of each alignment. Figure 5-3, Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 2), illustrates the alternatives in this subsection recommended to be carried forward and those recommended to be withdrawn.

Alignment Alternatives

Table 5-2: Alignment Alternatives Analysis Matrix (Subsection 2)

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
Ontario to Murrieta/Temecula											
S2-A1 (San Bernardino/I-215) Metrolink Corridor through San Bernardino and south along the I-215											
San Bernadino/ I-215 through Riverside via Chicago Avenue (A1.1)	✓										Community impacts, noise and visual impacts, biological resources, floodplain impacts, State Water Project/major utility impacts.
San Bernadino/ I-215 through Riverside via Iowa Avenue (A1.2)		✓			P				P	S	Higher level of construction impacts on residential, commercial, and industrial properties than Chicago alternative; Local stakeholder agreement supports the Chicago alignment.
San Bernadino/ I-215 through Riverside via UC-Riverside (A1.3)		✓			P	P			P	S	Not consistent with the UC-Riverside Master Plan; construction impacts on existing and planned UC Riverside facilities; Local stakeholder agreement supports the Chicago alignment.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
S2-A2 (UPRR/I-215) UPRR Corridor through Riverside and south along the I-215											
UPRR Riverside/I-215 through Riverside via Chicago Avenue (A2.1)		✓			P	P			S	S	Existing and future railroad operational constraints and impacts on major freight yard operations at Colton result in the alignment being impracticable.
Riverside/I-215 through Riverside via Iowa Avenue (A2.2)		✓			P	P			S	S	Existing and future railroad operational constraints and impacts on major freight yard operations at Colton result in the alignment being impracticable.
Riverside/I-215 through Riverside via UC-Riverside (A2.3)		✓			P	P			S	S	Existing and future railroad operational constraints and impacts on major freight yard operations at Colton result in the alignment being impracticable.
S2-A3 (I-10/I-215) I-10 Corridor through Riverside and south along the I-215											
I-10 through Riverside/I-215 via Chicago Avenue (A3.1)	✓										Biological resources, state water project, and utility impacts.
I-10 through Riverside/I-215 via Iowa Avenue (A3.2)		✓			P				P	S	Higher level of construction impacts on residential, commercial, and industrial properties than Chicago alternative; Local stakeholder agreement supports the Chicago alignment.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
I-10 through Riverside/I-215 via UC-Riverside (A3.3)		✓			P	P			P	S	Not consistent with the UC-Riverside Master Plan; construction impacts on existing and planned UC Riverside facilities; Local stakeholder agreement supports the Chicago alignment.
S2-A4 (I-15) I-15 Corridor											
I-15 Corridor - Milliken/ Hamner to Corona (A4.1)		✓				P			S	P	Impacts on Section 6(f) conservation area for the Delhi Sands flower-loving fly (endangered species), in addition to community, noise and visual impacts and impacts on equestrian trails; MSHCP core area impacts, waterway crossings, Santa Margarita Ecological Reserve.
I-15 Corridor - I-15 to Corona (A4.2)	✓										Community, noise and visual impacts and impacts on equestrian trails; MSHCP core area impacts, waterway crossings, Santa Margarita Ecological Reserve.

I-215 Alignments

Metrolink corridor through San Bernardino and South along the I-215 (S2-A1)

This alignment alternative is the only one that provides direct access to Downtown San Bernardino. The alignment approaching Downtown San Bernardino from the west is currently planned to be in an above-grade configuration. The alignment transitions to ground level and passes under I-215 and becomes above-grade again east of Downtown San Bernardino.

Overall this alternative alignment (S2-A1) would have the highest impact on communities and natural resources out of all of the alternatives in this subsection compared to S2-A2 and S2-A3. The United States Fish and Wildlife Service (USFWS) has expressed concern over the various river crossings where the alignment extends from Rialto to San Bernardino. The river is a wildlife movement corridor. Major utility crossings along the Santa Ana River include state water projects and major waterlines owned by the Western Municipal Water District and Metropolitan Water District (MWD).

San Bernardino/I-215 through Riverside via Chicago Avenue (S2-A1.1) – Although there are significant concerns associated with the natural resource and natural environmental effects of this overall alignment, more engineering will need to be completed to determine whether the potential effects of the S2-A1.1 can be addressed.

San Bernardino/I-215 through Riverside via Iowa Avenue (S2-A1.2) – This alternative results in a higher level of construction impacts on residential, commercial, and industrial properties, with no offsetting operational or construction benefits compared with the Chicago Avenue alternative.

San Bernardino/I-215 through Riverside via UC-Riverside (S2-A1.3) – This alignment alternative would result in high levels of disruption to communities and natural resources, and moderate effects on the natural environment. S2-A1.3 would directly extend through the UC-Riverside campus and would be inconsistent with the UC-Riverside Master Plan. UC-Riverside has expressed concern over the potential incompatible land uses between the HST alignment and recent school facility improvements. The alternative would potentially require modifications to UC-Riverside buildings.

As noted above, the S2-A1.1 alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**. This S1-A1.2 alignment follows an urban arterial on an above-grade structure resulting in visual community impacts in Riverside; this alignment is recommended to be **withdrawn from further consideration**. The S1-A1.3 alignment is not consistent with UC-Riverside Master Plan, and stakeholder input supports the Chicago Avenue alignment. Therefore, it is recommended that the alignment be **withdrawn from further consideration**.

UPRR Corridor through Riverside and South along the I-215 (S2-A2)

This alternative alignment is expected to have the lowest impact on communities, the natural environment, and natural resources. However, it potentially affects two environmentally sensitive areas including the Santa Ana River and Delhi Sands habitat, which supports the federally-endangered Delhi Sands flower-loving fly. Avoidance of the DSF habitat area is recommended by the USFWS. In the Colton-San Bernardino area, UPRR owns and operates a major freight yard that is crucial to its ability to serve customers to the east and in the Pacific Northwest. The freight yard, located at West Colton, would not be available for the HST alignment.

Overall this alternative alignment (S2-A2) would have less overall impacts on communities than the S2-A1 alignment alternative. The USFWS has expressed concern over the various river crossings where the alignment extends from Rialto to San Bernardino. The river is a wildlife movement corridor. Major utility crossings along the Santa Ana River include state water projects and major waterlines owned by the Western Municipal Water District and MWD.

As noted above, the alignment then extends south from the San Bernardino/Riverside county line via three design options that would have a below-grade alignment to climb the grade from Riverside to Moreno Valley along I-215.

Riverside/I-215 through Riverside via Chicago Avenue (S2-A2.1) – Although the Chicago Avenue alignment generally warrants further study, this alignment alternative has overriding concerns related to the availability of the UPRR.

Riverside/I-215 through Riverside via Iowa Avenue (S2-A2.2) – The City of Riverside, UC-Riverside, and Caltrans have expressed substantive concerns for a station along this alignment and arrived at a recommendation regarding the desirability of the station at March ARB. This alignment alternative has overriding concerns related to the availability of the UPRR.

Riverside/I-215 through Riverside via UC-Riverside (S2-A2.3) – This alignment alternative would result in high levels of disruption to communities and natural resources, and moderate effects on the natural environment. S2-A2.3 would directly extend through the UC-Riverside campus. UC-Riverside has expressed concern over the potential incompatible land uses between the HST alignment and recent school facility improvements. The alternative would potentially require modifications to UC-Riverside buildings. This alignment alternative has overriding concerns related to the availability of the UPRR.

As noted previously for other UPRR alternatives, UPRR has expressed serious concerns with the potential effect this alignment could have on freight service and rail operations with this, and all, UPRR alignments. Because of the impracticability of using UPRR ROW, all S2-A2 alternative alignments are recommended to be **withdrawn from further evaluation**.

I-10 Corridor through Riverside and South along the I-215 (S2-A3)

This alignment alternative extends east from Ontario International Airport along the I-10 corridor. As noted above, the alignment then extends south from the San Bernardino/Riverside county line via three design options that would have a below-grade alignment to climb the grade from Riverside to Moreno Valley along I-215.

Overall this alternative alignment would result in relatively moderate impacts on communities, natural resources and the natural environment. The impacts would be generally less on communities and natural resources than the S2-A1 alternative. The USFWS has expressed concern over the various river crossings where the alignment extends from Rialto to San Bernardino. The river is a wildlife movement corridor. Major utility crossings along the Santa Ana River include state water projects and major waterlines owned by the Western Municipal Water District and MWD.

I-10 through Riverside/I-215 via Chicago Avenue (S2-A3.1) – Although there are significant concerns associated with the natural resource and natural environmental effects of this overall alignment, more engineering will need to be completed to determine whether the potential effects of the S2-A1.1 can be addressed.

I-10 through Riverside/I-215 via Iowa Avenue (S2-A3.2) – This alternative results in a higher level of construction impacts on residential, commercial, and industrial properties, with no offsetting operational or construction benefits compared with the Chicago Avenue alternative.

I-10 through Riverside/I-215 via UC-Riverside (S2-A3.3) – This alignment alternative would result in high levels of disruption to communities and natural resources and moderate effects on the natural environment. S2-A3.3 would directly extend through the UC-Riverside campus. UC-Riverside has expressed concern over the potential incompatible land uses between the HST alignment and recent school facility improvements. The alternative would potentially require modifications to UC-Riverside buildings.

As noted above, the S2-A3.1 alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**. This S2-A3.2 alignment has higher community impacts in Riverside and is recommended to be **withdrawn from further consideration**. The S2-A3.3 alignment is not consistent with UC-Riverside Master Plan, and stakeholder input supports the Chicago Avenue alignment. Therefore it is recommended to be **withdrawn from further consideration**.

I-15 Alignments

I-15 Corridor (S2-A4)

This alignment extends in a southerly direction from Ontario International Airport along the I-15 corridor. The USFWS and RWQCB have expressed the most concern with the I-15 alignment from the San Bernardino/Riverside county line to the junction with I-215 because of substantial impacts on the MSHCP core areas and the large number of tributaries and creek crossings along the Temescal Canyon-Lake Elsinore corridor. The RWQCB has specifically expressed concern with potential creek crossings near Temescal Creek. Current native revegetation and riparian restoration efforts are underway near the Bedford Canyon Wash delta, which may be affected by this proposed S2-A4 alignment. Established conservation areas for federally protected plant species could be affected by the I-15 alignment.

The S2-A4 alternative provides lower travel time than the S2-A1, S2-A2, and S2-A3 alternatives because it is 7 miles shorter, and it may allow for the use of larger radius curves along the I-15 if an alignment that is acceptable to the

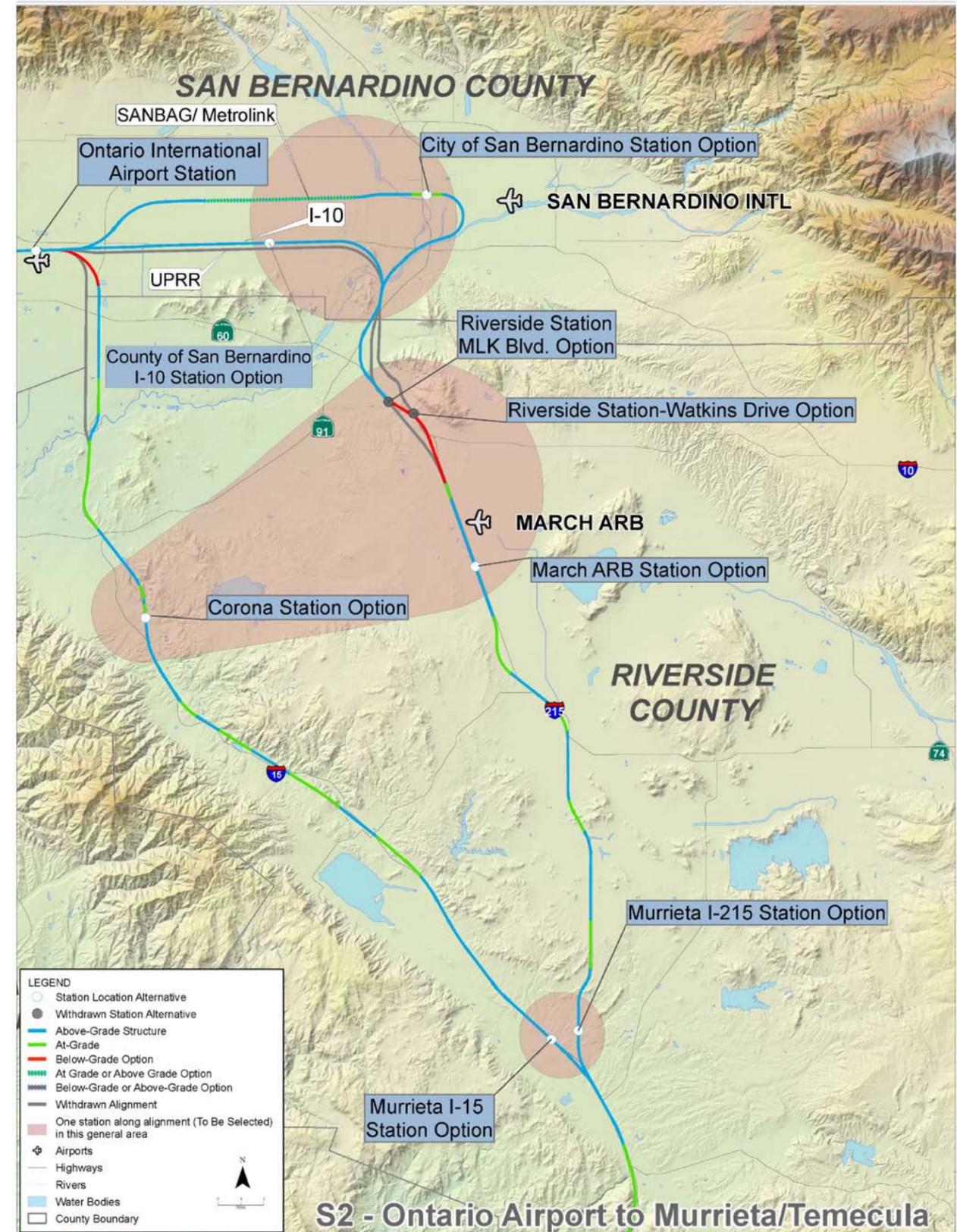
resource agencies can be achieved. However, the S2-A4 alternative does not provide a direct connection to the major Inland Empire population centers of Riverside and San Bernardino, which are the county seats of their respective counties. As previously described, two approach alignments exist from the Ontario International Airport connection.

Milliken/Hamner to Corona (S2-A4.1) – The S2-A4.1 approach alternative extends along local surface streets, Milliken Avenue, and Hamner Avenue, on the west side of I-15. The S2-A4.1 would also potentially affect an existing parcel conserved with Section 6(f) funds for the federally endangered Delhi Sands flower-loving fly. The USFWS recommends avoidance of this parcel.

I-15 to Corona (S2-A4.2) – The S2-A4.2 approach alternative extends from Ontario International Airport through undeveloped parcels of land along the east side of I-15. This approach alignment would have less community impacts than the S2-A4.2 alternative. This alignment does not affect Section 6(f) lands.

Related to the Section 6(f) land issue described above, the S2-A4.1 alignment is recommended to be **withdrawn from further evaluation**. Pending additional engineering and environmental evaluation, the S2-A4.2 alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Figure 5-3: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 2)



5.1.3 Murrieta/Temecula to San Diego Subsection (S3)

As described in Chapter 3, there are five alignment alternatives evaluated in Subsection 3 that combine to connect Murrieta/Temecula to San Diego. The alignment between Murrieta/Temecula and the SR 56 area is consistent for all five alignment alternatives. Within that portion of the alignment, three options address alternative station locations in Escondido. The five alternatives south and west of SR 56 address different alignments between SR 56 and San Diego. In addition, two design options extend from the San Diego International Airport to a terminus at the Santa Fe Depot in Downtown San Diego. Table 5-3 summarizes the results of the evaluations of the alternatives. Figure 5-4: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 3) illustrates the alternatives in this subsection recommended to be carried forward and those recommended to be withdrawn.

Alignment Alternatives

Table 5-3: Alignment Alternatives Analysis Matrix (Subsection 3)

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
Murrieta/Temecula to San Diego											
S3-A1 (SR-56) Murrieta/Temecula to SDIA via SR 56 and LOSSAN Corridor											
Murrieta/Temecula to SDIA via SR 56 and LOSSAN Corridor		✓							P	P	USACE, USFWS, and the California Coastal Commission have expressed concerns related to impacts on coastal canyons, vernal pools, and the California gnatcatcher. Highest environmental impacts for alternatives in Subsection 3.
S3-A2 (University City) Murrieta/Temecula to San Diego Alternative Routes											
Murrieta/ Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor - Carroll Canyon (A2.1)		✓							P	P	USACE, USFWS, and the California Coastal Commission have expressed concerns related to impacts on coastal canyons, vernal pools, and the California gnatcatcher. Impacts on aquatic resources, critical wildlife connectivity, and multi-habitat planning areas (MHPA) of the MSCP.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
Murrieta/ Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor - University City North (A2.2)	✓										Biological resource impacts.
Murrieta/ Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor - Rose Canyon (A2.3)		✓							P	P	USACE, USFWS, and the California Coastal Commission have expressed concerns related to impacts on coastal canyons, vernal pools, and the California gnatcatcher. Second highest environmental impacts for alternatives in Subsection 3.
S3-A3 (SR-163/I-8) Murrieta/Temecula to SDIA via SR163 and I-8											
Murrieta/Temecula to SDIA via SR163 and I-8	✓										Biological resource concerns, impacts on MCAS Miramar.
S3-A4 (I-15/I-8) Murrieta/Temecula to SDIA via I-15 and I-8											
Murrieta/Temecula to SDIA via I-15 and I-8		✓		P							Third level (over 120 feet tall) guideway would be required through Mission Valley, making this alignment impracticable
S3-A5 (Qualcomm) Murrieta/Temecula to Qualcomm Stadium via I-15 and terminate											
Murrieta/Temecula to Qualcomm Stadium via I-15 and terminate		✓	P	P						S	Alignment does not meet project purpose and need to access airports and city centers related to the Qualcomm Stadium terminus; has substantive constructability challenges; SANDAG and the City of San Diego prefer the SDIA Station Terminus.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION P = Primary, S = Secondary								COMMENTS
	Carried Forward	Withdrawn	Purpose and Need	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
S3-B1: ESCONDIDO DESIGN OPTIONS (From Country Club to Via Rancho Parkway)											
Escondido Station I-15 Option (B1.1)	✓										Community impacts, noise and visual impacts, and traffic impacts.
Escondido Station Centre City Parkway Option (below-grade) (B1.2)		✓			S					P	Alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core; City of Escondido expressed preference for the I-15 option.
Escondido Station Centre City Parkway Option (above-grade) (B1.3)		✓			S					P	Alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core; City of Escondido staff prefers the I-15 option.
S3-B2: DOWNTOWN SAN DIEGO											
Downtown San Diego Station Option (SDIA to Santa Fe Depot) - Above-Grade (B2.1)		✓			S					P	Land use and traffic impacts and impacts on historical resources; the City of San Diego and SDIA have expressed preference for the SDIA Station.
Downtown San Diego Station Option (SDIA to Santa Fe Depot) - Below-Grade (B2.2)		✓			S					P	Potential to encounter groundwater and hazardous wastes; the City of San Diego and SDIA have expressed preference for the SDIA Station.

All Alignments

Murrieta/Temecula to San Diego International Airport (SDIA) via SR 56 and LOSSAN Corridor (Alternative S3-A1)

This is the longest corridor from Murrieta/Temecula to SDIA and has the highest level of community disruptions and environmental and natural resource impacts. Therefore the alignment is recommended to be **withdrawn from further consideration**.

Murrieta/Temecula to SDIA via I-15 to Mira Mesa and LOSSAN Corridor (Alternative S3-A2)

University City via I-15 and LOSSAN Corridor Alternative extends south on I-15 and at Mira Mesa, turns west, and follows three alternative alignments to the LOSSAN Corridor:

Carroll Canyon (S3-A2.1) – The USACE, USFWS, and the California Coastal Commission have expressed concerns about the potential for this alignment to affect aquatic resources, critical wildlife connectivity, and MHPA of the MSCP, because these would involve greater impacts on waters of the United States including special aquatic sites such as vernal pools.

University City North (S3-A2.2) – This alignment would affect fewer residential uses and fewer sensitive noise receptors. Although the USACE, USFWS, and the California Coastal Commission have expressed concerns about all of these alignments, this alignment has the lowest level of environmental impacts in this subsection.

Rose Canyon (S3-A2.3) – The S3-A2.3 alignment would result in greater impacts on the MCAS Miramar property, potentially affect the recently commemorated Veterans Cemetery south of Miramar Road, and result in noise and visual impacts on adjacent military housing. The USACE, USFWS, and the California Coastal Commission have expressed concerns about this alignment. Residents of University City, in the vicinity of Rose Canyon, have also voiced concerns about potential effects of noise and vibration and visual changes on the surrounding community, including impacts on existing open space, wildlife corridors, recreational uses, and public safety associated with placement of a HST system close to the Rose Canyon Open Space Park.

Because of the high level of environmental impacts associated with the Carroll Canyon (S3-A2.1) and the Rose Canyon (S3-A2,3) alignments, these alternatives are recommended to be **withdrawn from further consideration**. The University City North alignment has the lowest level of environmental impacts in this subsection and is recommended to be **carried forward for further evaluation**.

Murrieta/Temecula to SDIA via SR 163 and I-8 (Alternative S3-A3)

This alignment alternative has the lowest levels of community, natural resource, and environmental impacts of the alignments in the subsection; however, the alignment would potentially affect vernal pools, sensitive plant species, federally endangered wildlife species, and known historical and cultural resources. Representatives from MCAS Miramar recommend a deep below-grade alignment to avoid impacts on military operations and natural resources on federal property. The USFWS also expressed concern regarding potential impacts on vernal pools and wildlife connectivity. The California Coastal Commission indicated a preference for the SR-163/I-8 corridor because it is an existing transportation corridor and potentially affects fewer coastal resources.

The Murrieta/Temecula to SDIA via SR 163 and I-8 alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Murrieta/Temecula to SDIA via I-15 and I-8 (Alternative S3-A4)

This alternative alignment would have generally lower impacts than the S3-A2 alternative alignments on communities, natural resources, and the environment. Impacts on vernal pools, wildlife crossings, and cultural resource through MCAS Miramar would be similar to those for the S3-A3 alternative alignment. Constructability is a major challenge for this alignment because crossing I-805 would require passing over the freeway on a structure more than 120 feet in height; the highest in the LA-SD corridor.

Because of constructability issues, this alternative is not practicable and is recommended to be **withdrawn from further consideration**.

Murrieta/Temecula to Qualcomm Stadium Terminus via I-15 (Alternative S3-A5)

This alignment would have the highest impacts on waterways but the least impacts on communities and natural resources compared to the other alternatives. This alignment will require the relocation of the Kinder Morgan Tank Farm near Friars Road. This is a serious constructability issue associated with this alignment.

As discussed in the station evaluation below, this alternative does not provide a direct connection to the SDIA or downtown San Diego and does not meet the HST project purpose and need. It would require additional transit travel time for passengers to access the SDIA and travel into downtown. The City of San Diego and SANDAG have indicated their preference for the intermodal connection to be made at SDIA. The S3-A5 alternative alignment is recommended to be **withdrawn from further consideration** because it does not meet the purpose and need of the HST project.

Design Options within Escondido and San Diego

S3-B1 Escondido Option consists of three options that extend through the City of Escondido, from Country Club Lane to Via Rancho Parkway.

Escondido Station I-15 Option (S3-B1.1) – Of these three design configurations, the S3-B1.1 Escondido Station I-15 option would have the least overall impacts on local communities.

Escondido Station Centre City Parkway Option (below-grade) (S3-B1.2) – This alignment alternative would be in a surface-level trench and result in the same level of potential disruption to communities as the above-grade alignment below. This alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core.

Escondido Station Centre City Parkway Option (above-grade) (S3-B1.3) – This alignment is not in conformance with the Downtown Specific Plan and would result in substantial construction impacts in the downtown core. This alignment alternative would result in higher potential disruption to communities than the I-15 option (S3-B1.1).

The City of Escondido has expressed a preference for the S3-B1.1 alignment. The S3-B1.2 and B1.3 alignments are recommended to be **withdrawn from further consideration** because there is local support for the I-15 option. The S3-B1.1 alignment is recommended to be **carried forward for further evaluation in the EIR/EIS**.

S3-B2 Downtown San Diego Station Option

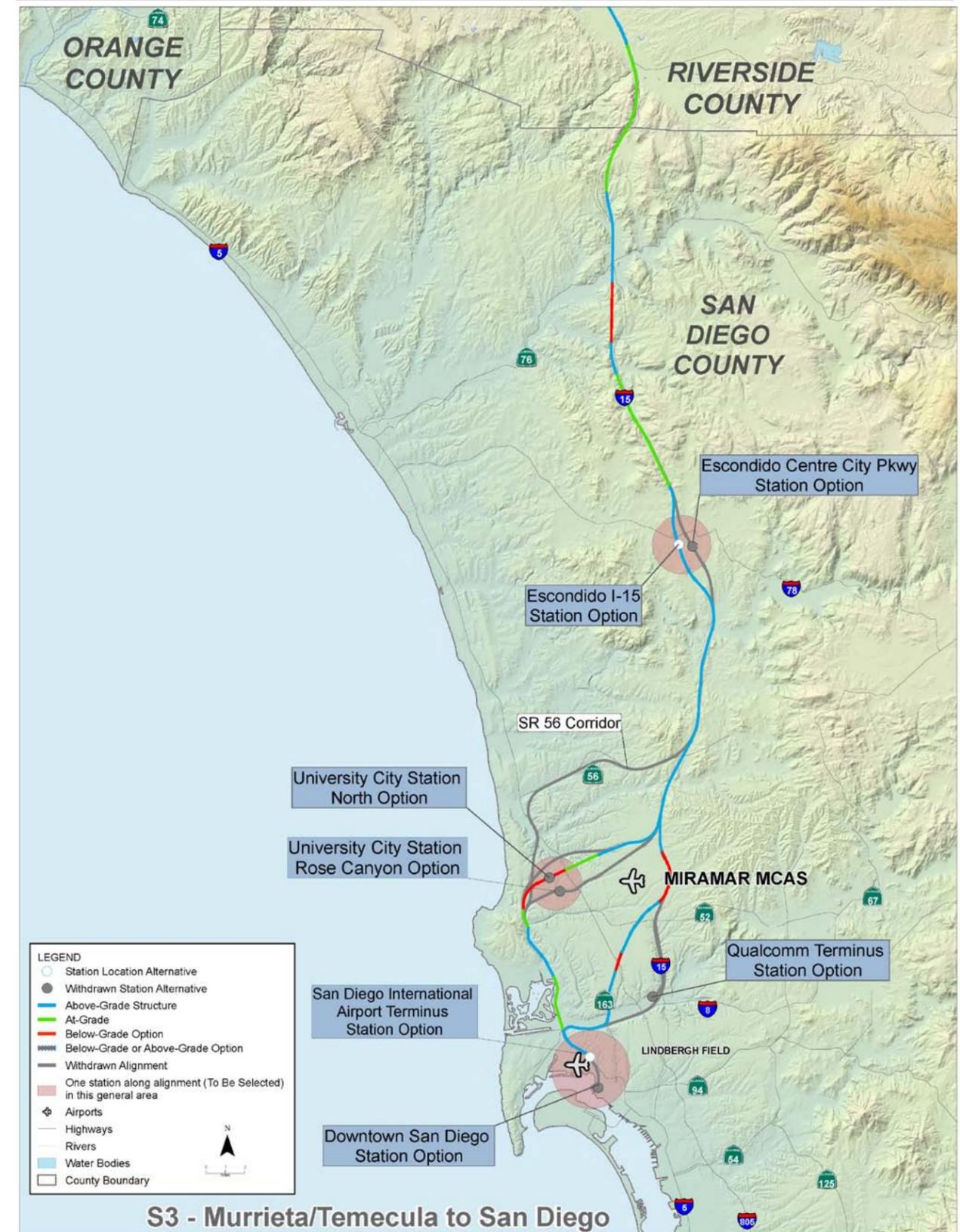
There are two alignment options – above-grade and below-grade:

Downtown San Diego Station Option (SDIA to Santa Fe Depot) (above-grade) (S3-B2.1) – This alignment would be disruptive to downtown, affecting historic register sites, such as the Santa Fe Depot. This alignment would also have visual and traffic impacts along the Embarcadero waterfront, conflicts with the North Embarcadero Redevelopment efforts, and would require vertical and horizontal separation from AMTRAK, the Coaster, and the San Diego Trolley.

Downtown San Diego Station Option (SDIA to Santa Fe Depot) (below-grade) (S3-B2.2) – Although this below-grade alignment has fewer impacts on land use, historical resources, and traffic than the above-grade alignment, issues associated with ground water and hazardous wastes around Broadway/Kettner Boulevard are critical challenges.

The City of San Diego and SANDAG have expressed a preference that the San Diego International Airport station be the terminus of this project (see discussion about Downtown San Diego Station below). Because of impacts on the historical Santa Fe Depot, the potential to encounter below-grade hazardous materials during construction, and the stated preference of SANDAG for the SDIA Station, the the S3-B2 alternative alignment is recommended to be **withdrawn from further evaluation**.

Figure 5-4: Alignment Alternatives and Station Options Carried Forward and Withdrawn (Subsection 3)



5.2 Evaluation of Station Location Alternatives and Station Options

5.2.1 LAUS to Ontario International Airport (ONT) Subsection (S1)

In this subsection, Figure 5-2 illustrates the stations that are recommended to be carried forward and withdrawn.

Station Alternatives

San Gabriel Valley Station Alternative

El Monte Transit Center Option – Constraints associated with this station site may limit parking capacity. A small pocket of residential areas to the east of Santa Anita Avenue has the potential to be affected. This station site has excellent intermodal transit connections and significant transit-oriented development (TOD) potential because the City of El Monte is promoting mixed use and TOD around the existing El Monte Transit Center as well as easy access with I-10. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS**.

El Monte Station – I-605 Option – This station site is not close to an urban center, does not provide major intermodal connections, potentially encroaches on the Rio Hondo River channel, and would displace a high school campus and residential areas. Withdrawal of this option does not trigger the withdrawal of the associated alignment alternative because connections to the West Covina Station and Pomona North Station options could be achieved along alignment alternative S1-A6. This station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration** because it is not close to an urban center, does not provide major intermodal connections, and results in high levels of localized community impacts.

West Covina Station Option – Selection of this station would require development of local design and siting options. Existing build-out of the surrounding area may limit TOD potential, but repurposing of malls as walkable, high-density, mixed-use developments provide a long-term potential. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Cal Poly Station Option – This station location is not close to urban centers or to the Cal Poly campus. Surface facilities associated with this station would displace scenic open space and residential development and visually affect a cemetery south of I-10 (Forest Lawn Memorial Park). This station site has limited access from the I-10 freeway and intermodal connections, and it has very limited TOD potential. Therefore, this station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration**.

Pomona/Holt Station Option – The City of Pomona has expressed an interest in further exploring the range of horizontal and vertical configurations of this station location. The surrounding area appears to have moderate TOD potential through redevelopment of area over time, including parcels that are currently vacant or underutilized. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS** pending further engineering evaluation.

Pomona/UPRR Station Option – This station location has excellent intermodal connections and downtown access. However, this station site is highly constrained. There are feasibility issues with this station location, including a narrow, active railway corridor; lack of parking; and potential impacts on historical resources including adjacent downtown commercial structures and the historical Santa Fe Depot. This station option for the San Gabriel Valley is recommended to be **withdrawn from further consideration** because the alignment alternative on which it is located is also being withdrawn.

Pomona/First Station Option – This station location has excellent intermodal connections and downtown access. However, this station site is highly constrained. There are feasibility issues with this station location, including a narrow, active railway corridor; lack of parking; and potential impacts on historic resources including adjacent downtown commercial structures and the historical Santa Fe Depot. This station option for the San Gabriel Valley is recommended to be **carried forward for further evaluation in the EIR/EIS** pending additional engineering study.

5.2.2 Ontario International Airport to Murrieta/Temecula Subsection (S2)

In this subsection Figure 5-3 illustrates the stations that are carried forward and withdrawn. Table 5-4 summarizes the results of the station analysis.

Ontario International Airport Station Alternative

Ontario International Airport – This station would connect to Ontario International Airport passenger terminals and the future extension of the Metro Gold Line. This station also has a potential connection with Metrolink if Metrolink service is relocated to the UPRR corridor. Furthermore, connection at this HST location is consistent with regional planning efforts to connect regional air hubs. There is regional TOD potential in the area between the UPRR corridor and I-10. Potential impacts on the surrounding historical features (Guasti Winery) are associated with this station. This station alternative is recommended to be **carried forward for further evaluation in the EIR/EIS**.

San Bernardino Station Alternative

City of San Bernardino Station Option – This station is supported by the City of San Bernardino, and the area has significant potential for TOD. This station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

County of San Bernardino I-10 Station Option – This station option would provide access to the HST system for the San Bernardino area if the City of San Bernardino Station Option cannot be achieved. This station alternative is recommended to be **carried forward for further evaluation in the EIR/EIS**.

North Riverside County Station Alternative

Riverside Station – Martin Luther King Boulevard Option – The surrounding land use is primarily residential, with limited potential for TOD. This station site is highly constrained because of the topography and visual impacts on the residential areas. After several meetings with Caltrans, the City of Riverside, and UC-Riverside, an agreement formed that UC-Riverside is not a desirable location for the HST station and that March ARB would be a more appropriate location to serve the needs of the Riverside area. Therefore, the Martin Luther King Boulevard Station option is recommended to be **withdrawn from further evaluation**.

Riverside Station – Watkins Drive Option – This station site is highly constrained because of topography (hills) and converging alignments of I-215 and the UPRR San Jacinto Branch line. The potential for TOD would also be limited by topography and land availability in station area. This station would not be close to traditional urban centers or within walking distance of the UC-Riverside campus. The City of Riverside and UC-Riverside believe that a station at March ARB better addresses the needs of Riverside County. Furthermore, the alignment for this station location is being withdrawn. Therefore, the Watkins Drive Station option is recommended to be **withdrawn from further evaluation**.

March ARB Station Option – The City of Riverside and UC-Riverside support this station site. The station would affect the adjacent military cemetery and would require further analysis if this station is selected. Although this station location would not be located near traditional urban centers, it would serve a region with potential urban growth (Moreno Valley) and potential for TOD in the area south of the proposed station. In addition, the future Metrolink extension to Perris would be located near this station. Connection at this HST location is consistent with regional planning efforts to connect regional air hubs. The March ARB Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Corona Station Option – The station area has significant potential for TOD through development of underutilized parcels and long-term repurposing of shopping centers as high-density, walkable, mixed-use developments. The City of Corona supports this station site. The Corona Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Murrieta Station Alternative

Murrieta Station – I-215 Option – Although constraints associated with this station site may limit parking capacity and future build-out, this station area has potential for TOD and the potential to support commuter rail through the

development of a shared-use corridor to San Diego. The City of Murrieta and the City of Temecula support this station site. This Murrieta Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Murrieta Station – I-15 Option – This station would be closer to the Murrieta town center. Although constraints associated with this station site may limit parking capacity and future build-out, this station area has potential for TOD. This station also has the potential to support commuter rail through development of a shared-use corridor to San Diego. This Murrieta station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

5.2.3 Murrieta/Temecula to San Diego Subsection (S3)

In this subsection, Figure 5-4 illustrates the stations that are carried forward and withdrawn.

Escondido Station Alternative

Escondido Station – I-15 Option – This station would be within 0.25 mile west of the Escondido Transit Center, which currently provides station service for intercity and local buses, local commuter rail, and the Sprinter. As part of the Downtown Specific Plan, proposed redevelopment efforts would occur primarily east of Centre City Parkway in the downtown core area. A potential connection to the Sprinter would require a new Sprinter platform. This station site is constrained because of the existing Sprinter facilities and would require further analysis if this station site is selected. This Escondido station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Escondido Station – Centre City Parkway Option – This station would also be within 0.25 mile east of the Escondido Transit Center, which currently provides station service for intercity and local buses, local commuter rail, and the Sprinter. This station would affect existing retail/commercial land uses and would provide better connectivity with the planned redevelopment efforts in Escondido compared to the I-15 station option. This Escondido Station option is recommended to be **withdrawn from further evaluation** because the alignment associated with this station is withdrawn.

University City Station Alternative

University City Station North Option – This station would connect to the Westfield University Towne Center Shopping Center and nearby moderate- and high-density residential developments. The SANDAG High Speed Rail Feasibility Studies, *Commuter Rail Overlay Station Study* (SANDAG, January 2010) include a station at this location. The City of San Diego and SANDAG have withdrawn their support for a HST station in this location. Because of the lack of support, this University City Station option is recommended to be **withdrawn from further evaluation**.

University City Station- Rose Canyon Option – This station site is not close to traditional urban centers or to planned centers of mixed-use development and has no intermodal access. There is no TOD potential. There are constructability issues with this station because curve radii and a short straight tangent between curves do not meet HST design standards for the length of station tangents. This University Station option is recommended to be **withdrawn from further evaluation** because the alignment associated with this station is withdrawn.

San Diego Station Alternatives

Qualcomm Stadium Terminus Station Option – This station location is distant from traditional urban centers, airports, and planned centers of mixed-use development. The potential for TOD is limited by the existing stadium development, although there is potential for future shared use of stadium property for mixed use and concentrated parking. The Qualcomm Stadium Station option is recommended to be **withdrawn from further evaluation** because the alignment alternative on which it is located is also being withdrawn.

San Diego International Airport Station Option – The ITC would provide a connection and station service for SDIA, HST, intercity and commuter rail, the San Diego Trolley, local buses, taxis, and rental cars. The surrounding land use includes SDIA, industrial, commercial/office, federal land, and residential uses. The phasing of this station with the associated ITC intermodal developments, site selection for parking structures, and resolution of traffic circulation and freeway access would require further analysis if selected. Large areas for parking could serve airport and HST users. This station location is consistent with regional and local planning efforts (*Destination Lindberg Study-2009*). The SDIA Station option is recommended to be **carried forward for further evaluation in the EIR/EIS**.

Downtown San Diego Station Option – Although this station directly serves downtown San Diego and the downtown waterfront, the City of San Diego and SANDAG have expressed a preference for the San Diego International Airport Station as the terminus of the project. The Downtown San Diego Station has challenging constructability issues because of the station’s proximity to the waterfront, the historical Santa Fe Depot, view corridor blockage, and visual and noise impacts associated with the adjacent high-rise residential development. This San Diego Station option is recommended to be **withdrawn from further evaluation** because the alignment alternative on which it is located is also being withdrawn.

Table 5-4: Station Options Analysis Matrix

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
San Gabriel Valley Station Alternatives											
El Monte Transit Center North Option	✓										Station integrated with eastern terminus station of El Monte Busway serving downtown Los Angeles (Metro Silver Line); a major San Gabriel Valley intermodal center. Station serves downtown El Monte, within 0.75 mile of El Monte Metrolink Station, easy access from I-10 freeway. TOD potential.
El Monte Station - I-605 Option		✓			S		S		P	S	Station site not close to urban center, does not provide major intermodal connection. Potentially encroaches on the Rio Hondo River channel and would displace a high school campus and residential areas.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
West Covina Station Option	◀										Station adjacent to downtown West Covina and major shopping centers, easy access from I-10 freeway. Site is located approximately equidistant between Los Angeles and Ontario HST stations. Significant site constraints require further study and may require local design and siting options.
Cal Poly Station Option		◀			P	S		S	S		This station location is not close to an urban center and is not a walkable distance to the Cal Poly campus. Facilities associated with this station would displace open space and residential development and visually affect the Forest Lawn Cemetery south of I-10. The station site has poor accessibility to I-10, no intermodal connections, and is not suited for TOD.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
Industry Station Option		◀	◀								Alignment alternative for this station was withdrawn.
Pomona/Holt Station Option	◀										Station within 0.25 mile of downtown Pomona and within two blocks of Metrolink/Amtrak station and bus intermodal center. Accessed by major north-south and east-west arterial streets (Holt Ave., Garey Ave.). Station displaces churches and other institutional and commercial uses.
Pomona/UPRR Station Option		◀	◀								Alignment alternative for this station was withdrawn.
Pomona/First Station Option	◀										Station location has excellent intermodal connections and downtown access. There are feasibility issues with this station location including a narrow, active railway corridor, lack of parking, potential impacts on historical resources including adjacent downtown commercial buildings and the historical Santa Fe Depot.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
Ontario International Airport Station Alternative											
Ontario International Airport Station	✓										Station connects to Ontario International Airport passenger terminals, future extension of Metro Gold Line, possible Metrolink (if service relocated to UPRR corridor in future), and easy access to I-10 and I-15 freeways. Significant TOD potential. Final station location determined by final alignment alternative.
San Bernardino Station Alternatives											
City of San Bernardino Station Option	✓										Station located on site of future Downtown Transit Center (includes extension of Metrolink service from existing Metrolink/Amtrak station). Site within 0.25 mile of civic/commercial core and baseball stadium. Significant TOD potential. Easy access from I-215 freeway.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
County of San Bernardino I-10 Station Option	✓										This station option would provide access to the HST System for the San Bernardino area if the City of San Bernardino Station Option cannot be achieved. This station location would be near a future freeway interchange providing intermodal connectivity.
North Riverside County Station Alternative											
Riverside Station - Martin Luther King Boulevard Option		✓									City of Riverside and UC-Riverside support the station at March ARB.
Riverside Station - Watkins Drive Option		✓	✓								Alignment alternative for this station was withdrawn.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
March ARB Station Option	✓										Station not near traditional urban centers but serves region of significant urban growth (Moreno Valley); interfaces with future Metrolink and passenger air services. Local stakeholders prefer the March ARB Station option. Site impacts on adjacent military cemetery. Easy access from I-215 freeway.
Corona Station Option	✓										Station in suburban location (4 miles southeast of Downtown Corona), but serves area of significant up-scale growth along I-15 corridor. Adjacent to regional retail/commercial/residential center at I-15/Cajalco Road interchange. Possibly significant TOD potential. Easy access from I-15 freeway.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/Accessibility	Revenue/ Ridership	Community Impact	Environment	
City of Murrieta Station Alternative											
Murrieta I-15 Station Option	✓										This station supports the I-15 alignment alternative. Station located within 1 mile of Murrieta town center and 3 miles from Temecula town center; easy access from I-15 and I-215 freeways. Existing context is commercial/mixed use center in area undergoing rapid urbanization. Significant TOD potential. Both cities support location.
Murrieta I-215 Station Option	✓										This station supports the I-215 alignment alternative. Station located within 2 miles of Murrieta town center and 3 miles of Temecula town center; easy access from I-15 and I-215 freeways. Existing context is commercial/mixed use center in area undergoing rapid urbanization. Significant TOD potential. Both cities support location.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
Escondido Station Alternatives											
Escondido Station I-15 Option	✓										Station located 0.5 mile from Escondido Transit Center, not within walking distance of downtown. Potential connection to the Sprinter commuter rail requires new Sprinter platform at station location. Site impacts on the Sprinter yard and operations and maintenance complex. Reasonable access from I-15 and SR 78 freeways.
Escondido Station Centre City Parkway Option		✓	✓								Alignment alternative for this station was withdrawn.

ALIGNMENT ALTERNATIVE/ STATION LOCATION AND DESIGN OPTIONS	ALTERNATIVES ANALYSIS EVALUATION		REASONS FOR ELIMINATION								COMMENTS
	Carried Forward	Withdrawn	Alignment Withdrawn	Construction	Incompatibility	Right-Of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Community Impact	Environment	
University City Station Alternatives											
University City Station North Option		✓		P					S		Deep underground station directly beneath major high-density, mixed-use center. Because of existing build-out, future TOD potential may be limited. Surface constraints limit access points, and construction impacts may be high. The City of San Diego and SANDAG have withdrawn their support for a station at this location.
University City Station – Rose Canyon Option		✓	✓								Alignment alternative for this station was withdrawn.
San Diego Station Alternatives											
Qualcomm Stadium Terminus Station Option		✓	✓								Alignment alternative for this station was withdrawn.

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